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Professional Bulletin 1-92-5

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Reshaping The Total Force

September/October 1992

Aviation Digest

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1–92–5 • September/October 1992

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Cover: **This issue concentrates on the U.S. Army's Total Force policy whereby our Active and Reserve Components serve as equal partners. This partnership must produce a solid force—trained, ready, and capable of decisive victory on a moment's notice. The lead article introduces the U.S. Army Reserve Command, Fort McPherson, GA, and discusses its potential cohesive effect on the U.S. Army Reserves and the Aviation community.**

Major General Dave Robinson
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Major General Dave Robinson

The Total Force

Throughout our history, citizen soldiers have served our nation in peace and in war. From the frozen rice paddies of Korea to the sands of Kuwait and Saudi Arabia, from the streets of Los Angeles to the storm-ravaged south Florida and Louisiana regions; when they were needed, our Reserve Components (RC) were there. As we anticipate the future, reliance on the RC to help defend our national security interests will increase significantly.

In the Cold War environment, Active Component (AC) forces could not deal with the follow-on forces of the Soviet Union if hostilities went beyond a 30-day period. To deter Soviet aggression in western Europe, our AC forces had to be enhanced significantly. This enhancement was accomplished in 1973, when Secretary of Defense James R. Schlesinger announced the RC would be the primary units to augment our AC forces under a "Total Force" policy whereby both the AC and RC served as equal partners.

The "roundout program," which integrates RC units of battalion- and brigade-size maneuver units into the AC divisions, was an important part in winning the Cold War. A significant feature of the roundout program is that it allows the Army to maintain more AC divisions than ever possible, if all the forces within the divisions were purely AC units.

Since its inception, the concept of a total force has evolved into a viable system that ensures our nation's security. The infant stages of developing the Total Force had some growing pains. Sometimes the AC was reluctant to treat the RC units as full and equal partners. However, in 1982, the Army began to correct a significant fault in the system by authorizing the roundout units to be equipped with the same equipment as the AC divisions with which they were affiliated. Because of this policy, some Army RC forces are now equipped with the M-1 tank, the Bradley fighting vehicle, and some of the most modern aircraft in the world, including the UH-60L Black Hawk, CH-47D Chinook, and AH-64 Apache.

Today, America is at a critical point in its history. The Cold War is behind us, but we are still faced with an extremely unstable and volatile world. Our nation's defense forces are contingency-oriented and must be trained and ready to fight anywhere in the world on a moment's notice. The nature of future adversaries is uncertain. We can expect to conduct operations along the entire continuum of military operations, ranging from peacekeeping and nation-building operations to major regional contingencies, such as Desert Storm. Active and Reserve Component forces must possess a solid partnership—trained, ready, and capable of decisive victory. Currently, many RC forces are engaged in a significant operation along the continuum of military operations—counterdrugs. The role RC units have played in helping to eradicate illicit drug production in this country and other nations is well-known.

While everyone within the Department of Defense agrees that restructuring of our forces is required because of the collapse of the Soviet Union, we must ensure that we shape our future forces to deal with any contingency that may arise. Our military strategy will be built on the premise of rapidly deployable, lethal, and expansible contingency forces—primarily continental U.S.-based, rather than large-standing, forward-deployed forces. In the past these contingency forces have been exclusively AC units; however, future operations may need to be evaluated to incorporate Reserve Components. For this to occur, however, the President and the Congress must settle their differences over the War Powers Act. It is imperative that the President have quick access to the

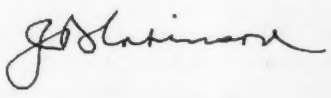
forces required to support contingency operations without large mobilizations subject to congressional review and reversals after a 180-day period.

Significant challenges are ahead for the Army and its aviation component. We must find cost-effective ways to train. In the future, we will assess the benefits of consolidation. As the defense budget shrinks, we must get maximum value for each training dollar expended. We will capitalize on all opportunities to train Active and Reserve Components together. We must look at innovative means of training the force. These mutual coordinated training events should focus on improving the combat capabilities of both components.

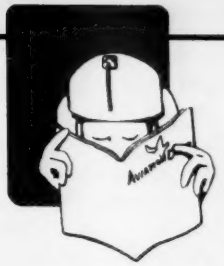
We in the Active and Reserve Components of Army Aviation have unique opportunities to train together. We can train together in a field environment, such as the Combined Training Centers, the Joint Readiness Training Center, and the National Training Center, or in combined exercises harnessing the power of simulation. In the future we must look at where we will conduct our flight training programs. While Fort Rucker will continue to be the center for Army Aviation training, some flight training in our modernized systems should be shifted to the Eastern Army National Guard (ARNG) Aviation Training Site and the Western ARNG Aviation Training Site.

There are benefits in patterning Active and Reserve relationships in Army Aviation after the highly successful model established in the U.S. Air Force. Active force augmentation is an operational necessity in Army Aviation, but there is advantage in placing selected aviation functions solely in the RC. Again the placement of these selected capabilities in the Reserves is contingent upon the President having ready access to these assets during periods of crisis.

While this is a time of great challenge, it also is a time of great opportunity. Aviation is a maneuver force integral to the reshaping of our nation's defenses. I firmly believe that Aviation will step into the 21st century with its Active and Reserve Components in full partnership. History has proven the value of reserves and its citizen soldiers. It is only through the full cooperation of all components that the Army will maintain its place as a relevant warfighting force.



VIEWS FROM READERS



Editor:

As Colonel Michael K. Mehaffey, former director, Department of Tactics and Simulation, Fort Rucker, AL, requested, I am writing my comment and question I addressed during his presentation to the U.S. Army Aviation Branch aviators attending the Command and General Staff Officer Course (CGSOC) at Fort Leavenworth, KS.

He addressed the ***U.S. Army Aviation Digest*** and its relative merits of providing a forum for Aviation discussion and ideas. In my experience, primarily the last 4 years, I've heard many aviators with good ideas who refused to write articles for the ***Aviation Digest*** because the chain of command had to screen (censor) articles before forwarding to Fort Rucker. I remember, specifically, a counterpart from 6th Cavalry whose article made the chain of command scrunity only to be returned by the ***Digest*** as not publishable since "it did not reflect current Aviation doctrine."

Our counterparts in the U.S. Navy and U.S. Air Force use their aviation magazines to stimulate discussion and, I think, to promote initiative. By our magazine only publishing the "school solution," we stifle that interaction.

In my opinion, the magazine editor's disclaimer should be sufficient to cover the doctrinal issue. Perhaps, mine is an isolated case, but I have heard this said about the ***Digest*** from several other aviators.

MAJ Michael J. Hartman
CGSOC, Class 92-93,
Section 23C
Fort Leavenworth, KS

***Response*: When Major General (MG) Dave Robinson became the chief of branch and commander of the U.S. Army Aviation Center, Fort Rucker, AL, he promoted a climate where "disagreement is not disrespect." He wanted an open and honest dialogue among his staff so that all options and opinions could be explored. From this open dialogue, the best solutions for problems could be identified and implemented.**

Approximately a year ago, MG Robinson changed the philosophy of the *U.S. Army Aviation Digest* to reflect his "disagreement is not disrespect" philosophy. He had received input from the field that the *Digest* was too parochial and Fort Rucker-based. He eliminated the Fort Rucker review board which had inhibited ideas contrary to current branch doctrine. MG Robinson wanted less "school solutions" and more field applications.

In his Warfighter 6 column in the January/February 1992 issue, MG Robinson said he wanted controversy in the *Digest*. Aviation is a large branch and can have differing opinions. The free discussion of those ideas and concepts are essential for the growth of the branch in a time of change.

MG Robinson has directed the *Aviation Digest* to become a forum for the expression of alternative ideas, concepts, and tactics as they relate to our doctrine. Through the *Aviation Digest*, members of the branch can exchange their views and see responses in "Views from Readers" or in alternative articles. This process is healthy for the branch.

As the executive editor for the *Digest*, I encourage you to write for us. The *Digest* attempts to carry articles that will reach a cross-section of the branch. We are relying less and less on Rucker-based products and more and more on field-generated products. One area the *Digest* can always use help in is getting articles written by Aviation soldiers and their noncommissioned officer leaders.

I hope to see more articles from across the branch representing the great ideas and applications going on in the field.

LTC Gerard Hart
Executive Editor
U.S. Army Aviation Digest

Editor:

I am writing to you to see if you can clear up something for me about the ***U.S. Army Aviation Digest***. The inside front cover says, "This medium is approved for the dissemination of material designed to keep individuals within the Aviation Branch knowledgeable of

current and emerging developments within their areas of expertise to enhance their professional development."

I should like to know which individuals are referenced by that statement. I have seen new programs, ideas, and tactically oriented stories in every issue I have read. I have noticed that almost all of these are related to the AH-64 Apache, AH-1 Cobra, and the RAH-66 Comanche.

The May/June 1992 issue has a 26-page layout on the RAH-66. It goes into great detail about the T800 engine, deployment, logistical support, and many other topics concerning the aircraft.

I was reading in the July 1992 issue of ***Rotor and Wing International*** (RWI) that funding for the Comanche might be included in a new program objective memorandum, and the production may be reinstated. According to that ***RWI*** article, we are not sure that there is even going to be an Army RAH-66.

I was looking for an article that would pertain to a UH-1 Huey, UH-60 Black Hawk, CH-47 Chinook, or fixed-wing pilot or crewmember in this last issue of ***Aviation Digest***. There were a few, but not many. There are other aircraft in the inventory besides AH-64s and AH-1s, and there are developments going on other than the RAH-66. Let us hear about them a little bit more.

Recently, I read in the ***Soldiers*** magazine about the UH-60Q, a new MEDEVAC variant of the UH-60. How about some information for the (very important person) fixed/rotary-wing pilot? At the Central Army Aviation Scheduling Office, Fort Belvoir, VA, a new hub system went into effect 1 October 1992 for the fixed-wing aviators in continental United States assignments. Why don't we hear about that? What about tactical loading for Chinooks? What is the state of competition for the new initial entry trainer? What about flight medics, flight surgeons, crewchiefs, mechanics, air traffic control personnel, their issues and tactics?

I think that these things are just as important, if not more, than the development of an aircraft that we are not sure that we, in the Army, will ever fly.

CW2 Glenn S. Bloom
U.S. Army
Fort Sill, OK

Response: **See the notice regarding the initial entry trainer.**

Editor:

Notice: **The Program Executive Office, Aviation, with the U.S. Army Aviation and Troop Command, St. Louis, MO, is vigorously pursuing the acquisition of a new training helicopter (NTH). The new helicopter will replace the aging UH-1 Hueys in the initial entry rotary wing (IERW) program at Fort Rucker, AL. The effort is focused on a commercial, "off-the-shelf," Federal Aviation Administration-type, certified helicopter that will have significantly lower operating and support costs than the Huey, but will not degrade training effectiveness. The program is designated as the New Training Helicopter.**

The Program Executive Officer, Aviation, Major General DeWitt T. Irby, has charged the NTH team to streamline the acquisition process to the maximum extent possible, while ensuring a "best-value" approach to source selection.

A "world class" team of aviation acquisition experts met in an almost nonstop series of conferences to put together a request for proposal (RFP). All items had to be fully justified for inclusion in this most important document or be excluded. This was a severe irritant to some of the long-standing, "rice-bowl" holders in the system. Each level, all the way up to the Secretary of the Army, backed the NTH team's effort in this.

A draft RFP reflected the initial efforts of the team. The RFP was widely distributed to all known interested industrial components (159 addressees) for comments. The NTH team analyzed the industry comments; they incorporated the comments, as appropriate, into a revision of the draft RFP. The team discussed the RFP revisions with industry's representatives in a presolicitation meeting. The team obtained additional comments and fully considered them in constructing the formal RFP.

The formal RFP was released in May 1992 with a suspense for proposal submission of 10 August 1992. To assure total understanding of the requirement, a preproposal meeting was conducted in June to permit all interested parties to surface any additional questions they might have. Four amendments to the RFP were released to formalize the results from these government/industry exchanges.

The evaluation process is divided into two major areas: the Source Selection Evaluation Board (SSEB), which is responsible for the overall evaluation of the proposals; and the Training Effectiveness User Evaluation (TEUE), which is essentially a "fly-off" to be conducted at a Fort Rucker airfield and surrounding environs by highly skilled instructor pilots from the Aviation Center. The results of the TEUE will be documented and transmitted to the SSEB. The board will incorporate those findings with all others and complete an overall comparative evaluation report.

Some think of the source selection process as a glamorous, attrac-

tive activity. In reality, when properly accomplished, it is a grinding, hectic, time-compressed, bundle of hard work. Thousands of calculations must be made and remade. Every word of each proposal must be reviewed again and again; first to assure every requirement of the RFP has been touched on; second to evaluate the level, depth, and firmness of the commitments made in the proposal; third to evaluate the accuracy of those commitments and cross-talk them against all other relatable areas to assure overall acceptability and creditability; and finally to score them according to their place in the hierarchy of priorities for this program. Then the evaluator must support his/her findings to at least two levels of review and place the refined findings into report form.

The report must then be finalized, summarized, and briefed to the body of senior experts known as the source selection advisory council (SSAC). This council may require even more refinement or more definition in the report. When this direction has been satisfied, the SSEB must then make the presentation to the source selection authority, the final decisionmaker, usually with the SSAC in attendance.

The decision is then made and a contract is awarded. About a year later (March 1994), the first of the NTHs will start arriving at Fort Rucker to be inducted into the training equipment inventory and be readied to take over the IERW training tasks. The NTHs will continue to perform those tasks for at least the next 20 years if current planning is fully executed.

The NTH team is dedicated to assuring that the selected aircraft will truly represent a "best-value" buy for the Army—effective, safe, affordable, rugged, and reliable enough still to be training students in the year 2014. LOOK FOR IT !!!!!!

Editor:

The U.S. Army Aviation Logistics School (USAALS), Fort Eustis, VA, is hosting the 1993 Aviation Logistics and Maintenance Commanders' Conference and the Maintenance Test Pilot Training Update 24 to 29 January 1993. For more information about either conference contact CW4 Hrichak or Mrs. Alvord at DSN 927-6166 or commercial 804-878-6166.

COL William J. Blair
Assistant Commandant,
USAALS
Fort Eustis, VA

Editor:

The 1993 National Conference on Noise Control Engineering will be held at the Fort Magruder Inn and Conference Center in Williamsburg, VA, on 2 to 5 May 1993. The Langley Research Center of the National Aeronautics and Space Administration (NASA) and the Institute of Noise Control Engineering (INCE) are organizing the conference.

Noise Control 93 is the 12th in a series of national conferences on noise control engineering that began in 1973.

The theme is Noise Control in Aeroacoustics. The technical program will consist of parallel sessions of invited and contributed papers. An exhibition of acoustical instrumentation and equipment will be at the conference, and a tour of the NASA/Langley Research Center will be available.

Noise Control 93 is being organized in conjunction with the Second Conference on Recent Advances in Active Control of Sound and Vibration, which will take place in Blacksburg, VA, on 28 to 30 April 1993. Those aviators interested in active noise-abatement techniques for helipad and flightline environments may wish to attend both conferences.

For further information, contact the Noise Control 93 Conference Secretariat, David G. Stephens, Mail Stop 462, NASA Langley Research Center, Hampton, VA 23665-5225. Telephone commercial 804-864-3640.

Editor:

French army aviators are looking for fellow aviation soldiers with whom to correspond. Pilots and aviation support personnel interested in sharing experiences and interests in military flying and service to their country are encouraged to set up a relationship by mail with your French counterparts. They are very interested in a continuing interchange and take "pen pals" very seriously. If interested, please send Lieutenant Colonel (LTC) Clay Edwards, Fort Rucker's aviation liaison officer in France, a brief synopsis of your position and interests. LTC Edwards will match you with a member of the Aviation Legere de P'Armee de Terre (light aviation, army) of like interests and experiences. If you want to correspond with a French soldier of another branch, send the letter to: LTC Lawyn C. Edwards, U.S. Army Training and Doctrine Command (TRADOC), Aviation Liaison Officer (Avn LNO), Unit 21551, Box A209A, APO AE 09777. He will forward the letter to that branch's representative. Postage is only $.29.

LTC Lawyn C. Edwards
TRADOC Avn LNO
France

Readers can obtain copies of the material printed in this issue by writing to the Editor, U.S. Army Aviation Digest, ATZQ-PAO-AD, Fort Rucker, AL 36362-5042.

Reserve Forces

A New Beginning

Major James A. Houston III
Aviation Staff Office
U.S. Army Reserve Command
Fort McPherson, GA

Twice the citizen soldiers now have a single chain of command to provide their leadership. Aviation units, in particular, are benefiting from activation of the U.S. Army Reserve Command (USARC), Fort McPherson, GA, specifically in force modernization, stationing, and facility construction.

Transfer of Functions from CONUSAs to USARC

On 18 October 1991, USARC, a major subordinate command under U.S. Army Forces Command (FORSCOM), Fort McPherson, GA, shed its provisional status and became a full team player. The USARC, which had operated provisionally since October 1990, planned the orderly transition of functions, and command and control (C^2), of assigned U.S. Army Reserve (USAR) units from the continental U.S. Armies (CONUSAs). Execution of this plan has already taken place for most units.

The new command is the result of a congressional mandate. Congress directed that Department of the Army increase the role of the Chief, Army Reserve (CAR), in the C^2 of USAR units and the management of USAR-specific resources. Upon completion of the transfer of functions from the CONUSAs, by October 1992, USARC will provide consolidated command authority for all USAR units reporting directly to the FORSCOM commander.

Leadership/Staff of USARC

Major General (MG) Roger W. Sandler, who also serves as the CAR, commands USARC, and reports directly to the FORSCOM commander. MG Sandler also serves as the deputy commanding general (DCG), Reserve Affairs, FORSCOM. MG Sandler's primary duty station is in Washington, DC. The DCG, USARC, MG Max Baratz, oversees the daily operation of the headquarters, which is located on Forts McPherson and Gillem, Atlanta, GA. The CAR command sergeant major (CSM), Collin L. Younger, also wears dual hats as the USARC CSM.

Responsibilities of USARC/CONUSs

To assist the command in managing resources, USARC is developing a "winning" staff comprised of a mix of 70-percent civilian employees, 21-percent Active Guard and Reserve soldiers, and 9-percent Active Component soldiers. By October 1992, the staff will increase to 814 personnel.

The command's responsibilities extend to all Army USAR units assigned to FORSCOM. The CONUSAs will remain responsible for training, operations, mobilization, and deployment functions. USARC will provide centralized control of resource allocations, including funding, to assigned USAR forces. This change will improve the effectiveness and efficiency involved in the distribution of those allocations.

Aviation Office under USARC

Initially, USARC's primary focus was to identify and work through systemic problems while establishing a new command. To meet the needs of USAR aviation forces, the USARC aviation office was formed. The aviation office

works directly for the Chief of Staff, USARC. Formation of the office enables USARC to focus a concentrated effort on improving all aspects of aviation. The aviation office provides the command a single voice and point of contact for both information and responsibility in aviation matters.

Colonel (COL) George F. Francioni is the chief of the aviation office, which has 18 authorized positions (see figure). COL Francioni serves as the principle advisor to the commander and staff on all aviation matters within the USAR aviation program. He provides guidance and leadership to about 7,000 aviation and aviation-related soldiers in USAR troop program units.

To manage the USAR aviation program, COL Francioni has three branches within the aviation office. The operations and plans branch manages current USAR Aviation program operations. This branch manages such diverse actions as special mission requests, military aviation assistance to counterdrug operations, and requests for flight orders. It manages aviation funds to include a flying hour program of 90,000 hours at a cost of over $40 million. Current and future aviation program planning needs and requirements also are prepared by this branch. A major action for the branch has been planning for the conversion of two AH-1 Cobra attack helicopter units to the AH-64 Apache helicopter configuration.

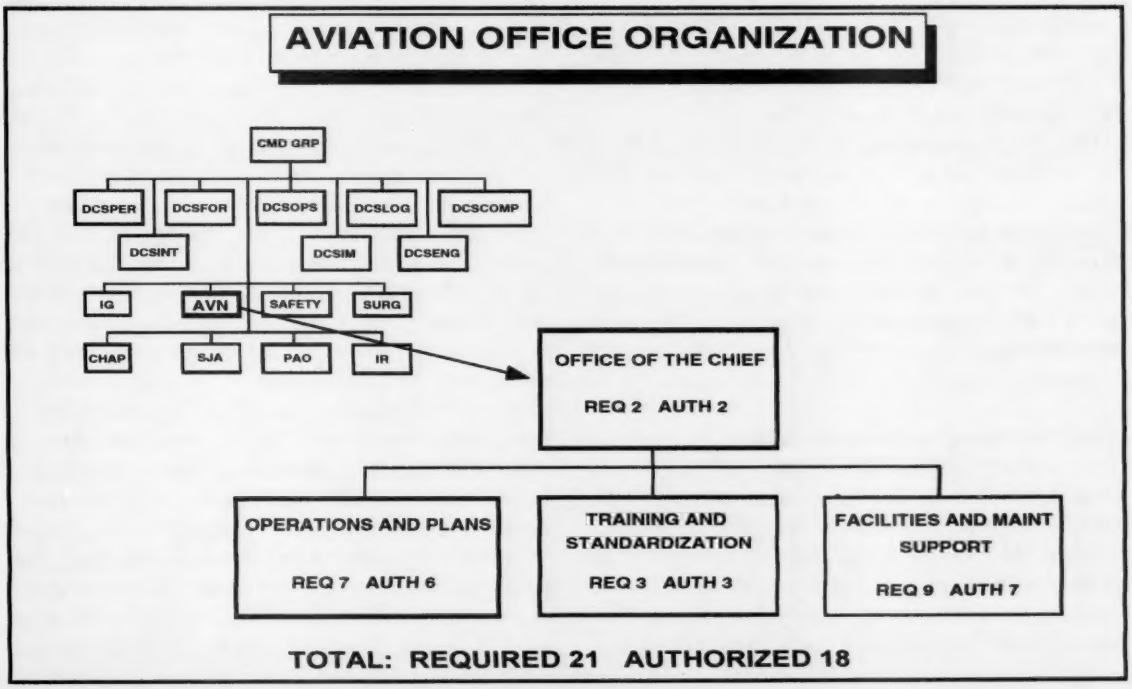
The operations and plans branch is involved with another area of interest, that of equipment acquisition and distribution. The fielding of night vision goggles and the distribution of U-21 Ute and UH-60 Black Hawk aircraft to USAR units are examples.The efforts of this office toward purchasing and fielding the C-12F Huron aircraft will bring a new era to reserve aviation.

The standardization and training branch develops and implements USAR standardization and training policies. One facet of the branch's duties that reaches to the individual soldier level is the prioritizing and coordination of course quotas at both formal and regional schools and training sites. To administer the standardization policies for the USARC, Army Regulations (AR) 95-1, AR 95-3, and AR 140-1 are being supplemented and revised by the standardization branch.

The third branch in the aviation office is the facilities and maintenance support branch. This branch is active in monitoring the material readiness of the 513 rotary-wing aircraft and 47 fixed-wing aircraft belonging to the Army Reserve division also involved in the aviation support facilities program. The branch oversees the budgeting, stationing, and management for 33 of these facilities.

Cohesive Effect of USARC

As the USARC matures, and the functions and responsibilities of command are transferred from the CONUSAs, the aviation community, and the Army at large, will see the cohesive effect the USARC brings to the Total Army Force. The aviation office will play a major role in developing that cohesiveness for the aviation community. ❐



Will The Pentagon's Force Mix Meet The Future Threat?

Captain(P) Brian J. Boquist
Commander, B Company, 3d Battalion
12th Special Forces Group (Airborne)
U.S. Army Reserve
Portland, OR

In the early morning hours of 2 August 1990, Mohamed Jundi looked out his window to Fahad Al Salem Street and saw Soviet-made tanks rolling into Kuwait City. In 210 days, he watched American-made Abrams tanks and Bradley fighting vehicles liberate the Emirate of Kuwait. In 7 months, Department of Defense (DOD) mobilized, deployed, trained, prepared, and executed the Gulf War of 1990 to 1991. The 100-hour ground war has been compared to the classic armor operations of World War II (WWII). No question, armor forces carried the striking blow that liberated Kuwait.

The officers commanding American military units are paid to expect the unexpected coupled with preparing primary, alternate, and supplemental positions and plans. To analyze the Gulf War is to quickly comprehend that not all military actions enjoy the luxury of a 7-month buildup before action. Four questions discussed in this article comprise a tightly coupled complex issue of the Pentagon's proposed force mix versus the future threat. This issue has not been raised since before WWI.

Identifying Potential Threat Regions

As stated in Congressional hearings of the Senate Armed Forces Committee, the answer depends on assessing the potential enemy or threat to the country. With the Warsaw Pact crumbling and the Soviet Union being replaced by shadows of itself, this leaves only a small list of known threats to America's national security. Recently, the Pentagon publicly identified North Korea, Cuba, India, Pakistan, and Iraq as potential hot spots. As the world changes, the military focus changes to identify potential geographic or climatic regions that may become a threat in the future.

In scientific terms, seven categories of climatic regions are subdivided into subtypes as follows: Tropical rainy climates (rainforest, savannah), dry climates (steppe, desert), humid mesothermal climates (dry summer subtropical, humid subtropical marine west coast), humid microthermal (warm summer, cool summer, subarctic), polar (tundra, ice cap), undifferentiated highlands, and extensive uplands.

Strategists are familiar with the humid mesothermal climates and terrain in America and Europe along with the former military force structures. However, what about the rest of the world? In lay terms, dry climates comprise roughly one-quarter of the earth's land, while true desert is one-seventh; mountains comprise one-fifth; rainforests and tropical rainy climates, about one-third; about one-quarter is subarctic or continental; and the remaining lands are mostly in America and Europe.

About three-quarters of earth's land surface is desert, tropics, arctic, tundra (subarctic), or mountains. Classical armor or mechanized operations are nearly impossible in the tropics, arctic, tundra, and mountains. Desert warfare is limited to logistical and time constraints of the situation combined with geological characteristics of the desert. The Israeli Defense Forces are fully aware of the inoperability of armor in sandy deserts common to northern Africa and parts of Arabia. Moreover, regions in South America,

Africa, Middle East, Asia, and Australia are thousands of miles away from the continental United States.

The Requirement for Light Forces

Obviously, the requirement for classical armor and mechanized forces in the desert will not disappear nor diminish in the next decade. This is true, despite the article "But Whom Will We Fight?, Frustration at U.S. Army Tank School," in the 4 February 1992 issue of the ***International Herald Tribune***. Can armor and mechanized forces be projected to move 1,000 to 8,000 miles in a few days or weeks? No. Can armor or mechanized forces be airlifted to the battlefield by the U.S. Air Force (USAF) or aircraft from the Civilian Reserve Air Fleet (CRAF)? No. Army's Abrams tank and Bradley fighting vehicle are too large or heavy for the USAF's C-130, C-141A, C-141B, and C-5A while CRAF aircraft face similar problems. Yes, armor and mechanized forces can be sealifted to destinations around the world given time, ships, and lots of fuel.

The premise that lighter forces are required by American forces is evidenced by Vietnam, Grenada, Panama, and the Gulf War. The speed of deployment depends on the aircraft available for lifting the forces to the theater of operations. The first major forces on the ground in Saudi Arabia were the 82d Airborne Division from Fort Bragg, NC. Though well trained in infantry, the airborne soldier's antiarmor weapons are limited. Airborne has short-range (1,000 meters (m)) capability with the Dragon; limited numbers of TOW medium-range (3,750m) antiarmor weapons; and minimal artillery support with the 105 millimeter (mm) artillery piece. An organic organization, the 82d, or any light infantry division, lacks any serious antiarmor capability in the face of an armored division.

In simple terms, everybody held his breath and prayed that Iraqi armored divisions did not move south into Saudi Arabia. Grinding infantry under the tank tracks of Soviet-made armor is no way to delay a foe while awaiting sealift armor and mechanized forces. The conventional tactical response would be to delay the enemy through fire and maneuver. The classic concept is to trade space for time while withdrawing intact either under pressure or through deception. Unfortunately, the airborne division, or light infantry division, has neither the maneuver or firepower capability to accomplish this mission. These soldiers travel by foot at a rate of 3 kilometers (km) per hour while armor easily does 35km per hour.

An average airborne or light infantry battalion should have 2 to 4 TOW antiarmor launchers, 27 Dragon antiarmor launchers, and 27 7.62mm M60 machineguns. Hopefully, the battalion will have limited 105mm artillery support. The TOW launcher has a range of 3,750m; time of flight to the target is about 19 seconds with a basic load of 7 rounds per weapon. The Dragon launcher has a range of 1,000m being a single-round weapon. The M60 machinegun has a range of 1,000m with ammunition limited to what can be carried on the personnel.

The average opposing armor battalion would be comprised of 40 tanks and 2 BRDM amphibious antiarmor scout vehicles supported by 122mm self-propelled (SP) howitzers and possibly a rocket battery. The tanks likely will be equipped with 125mm main guns firing 6 to 8 rounds a minute effective 50 percent of the time at 2,000m. The basic load of ammunition on each tank is 40 rounds. Each of the 40 tanks should have one 12.7mm machinegun and one 7.62mm machinegun, a total of 80 for the battalion. The 122mm SP howitzer has a range of 15km.

Discussion of Issue

1. Would the first American forces on the ground in August to September 1990 have been able to turn back the Iraqi armored forces?

Clearly, the capability of airborne infantry battalions to accomplish this feat can be seriously questioned. The claim of massive air superiority has merit; however, the lack of adequate quantities of aviation fuel again seriously questions whether forces on hand could have accomplished the mission.

The discussion of task-organizing special antiarmor units to support the airborne units commenced immediately after the Iraqi invasion. Several challenges were apparent that needed to be overcome before successfully deploying these special units. The units with the best command, control, and communications (C^3) assets were Special Forces (SF) detachments, U.S. Army Special Operations Command, Fort Bragg, NC. The separate antiarmor battalions having the required firepower and maneuver capability were under the command of the U.S. Army Forces Command, Fort McPherson, GA. If the antiarmor battalion and SF company could have been task-organized, the airborne forces could have been immediately augmented with superior antiarmor capabilities.

Unfortunately, the four separate antiarmor battalions were rated combat-ready but belonged to the GA, OK, WI, and OR National Guard (NG). Even though the U.S. Marines, Navy, and Air Force mobilized combat reserves, the U.S. Army did not follow suit whether for political or other reasons. Whether Reserve Component (RC) or Active Component (AC), the task organization of antiarmor forces merited consideration in Iraq in 1990 and merits consideration in the future.

The four separate antiarmor battalions were not dedicated assets but had tremendous mobility and firepower. Each of the battalion's five line companies could have been teamed up with an SF detachment and host country counter-

parts to perform overwatch, screening, raiding, and reconnaissance missions. The SF detachments could have provided C^3, 60mm or 81mm mortar, and Stinger air defense expertise with host nation forces providing guides, language, and other liaison.

Each antiarmor company is virtually self-sufficient with medics, mechanics, supplies, logistics, fuelers, limited mess facilities, and communications. Each of a battalion's five companies has 12 M996 TOW high-mobility, multipurpose wheeled vehicles (HMMWVs); 6 M1025 Scout HMMWVs; 7 M998/1038 Command HMMWVs; and 8 other support vehicles. In addition, the TOW and Scout HMMVs have M60 machineguns for a total of 18 per company. The Command HMMWVs have two empty seats while the TOW and Scout HMMWVs have one empty seat per vehicle. There is seating for an extra 25 personnel along with mortars and Stinger missiles.

The HMMWV's ground weight per square inch allows it to operate on desert sand and tropical clay, while armor is too heavy and sinks. Further, the HMMWV can operate in mountains and arctic environments restrictive to armor. The HMMWV vehicle range is 515 km, but the vehicle can carry additional fuel and water. The maximum effective range of the TOW II weapon is 3,750m, which is stand off to most armor such as those weapons possessed by the Iraqi forces in 1990. Two mortars for each company could have provided indirect fire support out to 4,595m. Two Stinger missile launchers could have provided adequate air defense against attack helicopters. The Scout HMMWVs are configured for MK-19 40mm grenade launchers and M2 .50-caliber machineguns to include ammunition racks. Companies organized in this nature would have more firepower than a light infantry or ranger battalion.

Space existed for additional SF or host nation personnel throughout each antiarmor company with no requirement for additional vehicles. The Command HMMWVs could be used for Stinger and/or mortar carries without any problems since redundancy exists in the line platoons.

These company-size teams could have conducted unconventional raids, reconnaissance, screening, and psychological operations deep in enemy territory or to the front of airborne forces. Unlike armor, the antiarmor task forces could operate in the limited terrain of the desert, tropics, and mountainous environments. The HMMWV can climb grades of 60 percent and traverse slopes of 22 to 40 percent. Armor does not have the same capability. On hilly terrain, the HMMWV can expect to achieve speeds of 30 to 40 miles per hour. This is critical in geographic areas that require the mobile firepower to conduct operations and support airborne or light infantry. The U.S. Army should note that other military forces in desert, tropical, and mountainous geographic regions have wheeled armored vehicles for this same reason.

Company teams of this nature could be resupplied by air drop and are fully capable of being sling-loaded by helicopter. The antiarmor companies could provide combat fire power for the offense or defense. The SF detachments could provide air defense, indirect fire support, command and control, psychological operations, civic action, long-range communications, and liaison. Host nation forces could provide liaison and language skills coupled with command coordination with allied forces.

Unlike the Ml Abrams tank weighing 60 tons, the vehicles of the antiarmor battalions are all capable of airlift by USAF aircraft. The M966 HMMWV has a gross vehicle weight of 8,200 pounds (lbs) while other HMMWVs do not exceed 9,100 lbs. Six HMMWVs could be carried on a C-141 USAF aircraft, while 10 could be carried on a C-5 USAF aircraft at a minimum.

To airlift an entire antiarmor company with attachments would require six C-141 aircraft or possibly three C-5A aircraft. This means every 6 aircraft would lift 12 TOWs, 6 MK-19 40mm grenade launchers or M2 .50-caliber machineguns, 18 7.62mm machineguns, 20 M203 grenade launchers, 92 rifles, 17 pistols, 2 mortars, 2 Stinger missiles, 27 night vision devices, and 109 combat-ready personnel with their equipment and vehicles.

2. Does the United States have a force structure of units capable of deploying in a few days or weeks to meet a threat similar to the situation faced by the 82d Airborne Division in September 1990?

The proposed task organization of antiarmor companies and battalions together with SF detachments was never implemented. Even though a Rand Note Report titled, "TOW Missile System Utilization at the National Training Center," dated October 1990, pointed out the advantage of the wheeled TOW, the separate antiarmor battalions are being inactivated.

Further, an article titled, "Military Lessons Learned from the Gulf War," in the November/December 1991 issue of the ***Army Research, Development, and Acquisition (RDA) Bulletin*** reports, "New tactics might resemble guerilla warfare writ large [sic]: smaller, agile, stealthy units stage hit-and-run raids with tanks, armored cars, artillery, and helicopters integrated with tactical air support." It appears inactivating highly mobile, airlift-capable units means fewer units will be available to respond to crisis situations around the world.

3. Will the Pentagon's proposed force structure of the U.S. Army meet the geopolitical realities of the world next year or in 5 years?

The RDA article points out America's military continue to focus wrongly on weapons systems and defense acquisition. The basis of the article is an analysis from the Center for Strategic and International Studies, Washington, DC. The article points out that the most important factor to winning a war is having quality, capable, well-trained personnel. Another important point is that American defense strategy remains inappropriate for the threat facing the United States in the world today. America needs a "balanced defenses investment strategy" to meet future defense requirements, but it must "place the greatest emphasis on the quality of military personnel."

Presently, the Pentagon is proposing to eliminate about 25 percent of the combined military personnel. This will allow further acquisition of weapons systems or retainment of present equipment over personnel. In late March 1992, Secretary of Defense Dick Cheney proposed massive cuts in Reserve and NG personnel, focusing on combat arms units. Even though these units are more cost effective, it is considered important to transfer combat arms control to the Active Army. The reasons cited by Secretary Cheney and General Colin Powell, Chairman of the Joint Chiefs of Staff, run counter to educated recommendations, the experience of Reserve service in the Gulf War, and the concept of a balanced defense strategy.

4. Should U.S. citizens rely on an Active Component U.S. military or a mix combined with the citizen soldiers of the Reserve and National Guard components of the various services?

This question was first put to ink during July 1776 by the first Congressional delegation that adopted the Bill of Rights. The right to bear arms focused on the ability of states to control a militia that could counter the tyranny of a central government. Today, we focus on the right for personal ownership of weapons, but that was not the worry of America's founding fathers.

Recall that the King of England used the British Army to suppress opposition and control the population in the Colonies. The "Red Coat" soldier became a symbol of the oppression to freedom-loving Americans. Just the same, the Nazi Storm Trooper became the symbol of oppression in Germany in the 1930s. The Committee for State Security and Chief Intelligent Directorate of the General Staff served the same purpose in the Soviet Union until just last year.

The interrelationship of the army and nation in geopolitical terms are inseparable according to Karl von Clausewitz, author of "On War," published 1832-1834. Clausewitz's thoughts served as a basis for the developing modern military concepts like the tenants of AirLand Battle Operations and combined arms philosophy. Unfortunately, in Clausewitz's country, the people experienced the army's support of fascism and the literal extermination of those opposing the government.

The military cannot be isolated from their responsibilities to a nation whether open warfare, economic distress, drug overdose, or foreign assistance (nation-building). A look at America's national debt, which is primarily due to defense spending, is like looking in the mirror. Even after WW II, British Prime Minister Winston Churchill fell victim to failing to adhere to public demands. American leaders in government who assume responsibility acquire their legitimate authority from the people in our democracy.

Further, America should note the National Guard has remained at the same strength since President Theodore Roosevelt set the present level almost 100 ago. If there is a failure in the readiness of the National Guard and Army Reserve, it should be fixed. However, the U.S. Army leadership in the Pentagon did not point out any failures until discussions of mobilization in August 1990. Even if the NG combat units required 90 days to train up, the Active U.S. Army required 7 months from August 1990 to February 1991. The readiness issue of the National Guard and Reserve is still being debated within the ranks of the Active Component of the U.S. Army.

It could be stated that the soldiers of the four separate NG antiarmor battalions being inactivated in OR, GA, OK, and WI probably gave more to their country than their active counterparts. The citizen soldiers who gave up their weekends to be trained, equipped, and prepared to serve their country also during the week held civilian jobs to support their families and pay taxes. Similar tax dollars have been overcommitted by the military and government alike, in turn creating a portion of the national debt to build a massive military industrial complex.

Conclusion

In closing, remember this is a political rather than an economic issue. The federal expenditures for the National Guard are 2.8 percent of the DOD's budget. To cut the National Guard in half will only save 1.4 percent of the budget. What would we be saving? We need to focus on realistic future missions not political and economical rhetoric.

The four questions discussed in this article deserve serious consideration by every American. Military personnel, government leaders, business people, and homemakers alike will be influenced by the final outcome of this discussion. Never in U.S. history has such a complex issue been given such little public discussion. The finger-pointing and politics of an election year must be put aside to discuss these important issues. The future of America in geopolitical, military, social, and economic terms depends on the right solution being implemented in the next year. ❐

The Total Force Partnership

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The integration between the U.S. Army Reserve and the Active Army can and must improve. Proposed budget cuts and changing international security requirements have made the Total Force partnership increasingly important. Several incidents during Operations Desert Shield and Desert Storm show that the Total Force partnership between the Reserve and Active Army is not working.

In contrast to the Army, the U.S. Marine Corps was successful in implementing its Total Force concept during Operations Desert Shield and Desert Storm. The Marine Corps' success came from a total commitment, during peacetime, to integrate its Reserves and Active Force. By studying the Marine Corps' Active and Reserve relationship, the Army can improve the integration of its Active and Reserve Forces.

The Total Force partnership is more important to our national security now than ever before. Disintegration of the Warsaw Pact has greatly reduced the threat and has expanded the warning time for an attack. This fact has made it difficult for Army senior leaders to justify a large standing force. With lack of justification, Congress has decided to reduce the Active Army and increase the nation's reliance on the Reserves.

This cut will reduce the Active Army from 18 divisions with 730,000 personnel to 12 divisions with 540,000 by 1995.[1] This 25 percent cut in the Active Army increases the nation's dependency on the National Guard (NG) and Army Reserve, and makes success of the Total Force policy critical.

Results from Operations Desert Shield and Desert Storm show that the Total Force concept is not working for the Army. On 22 August 1990, President George Bush authorized the callup of 200,000 National Guardsmen and women. Immediately after this callup, Secretary of Defense Richard B. Cheney enlisted only the combat support and combat service support (CSS) units of the NG. Secretary Cheney did not alert NG combat units because Department of Defense (DOD) concluded that these units were not ready for combat.[2]

On 8 November 1990, after pressure by Headquarters, National Guard Bureau, DOD activated three roundout brigades (48th Infantry (Mechanized) (Mech), Georgia Army National Guard (ARNG), assigned to the 24th Infantry Division; 155th Armored, MSARNG, assigned to the 1st Cavalry Division; and 256th Infantry (Mech)). Although, these brigades spent 2 months training, they never deployed with their Active Army counterparts.[3]

In contrast, the Marine Corps deployed Reserve combat units to the Persian Gulf with great success. The 8th Tank Battalion, Marine Corps Reserve, mobilized and deployed to Southwest Asia. The battalion was successful in its mobilization and participation in the attack on Kuwait City. The unit received high praise during Operation Desert Storm for its ability, professionalism, and readiness.[4] The Marine Corps' ability to send combat reserve units to the Persian Gulf is a result of the Corps' peacetime reserve system. The Marines concentrate on keeping their Active and Reserve Forces similarly structured, equipped, and trained. These practices ensure that the Marines have an effective Total Force integration upon mobilization.[5]

The Marine Corps Reserve maintains its structure by recruiting most of its manpower from its Active Force. This policy ensures that its Reserve units will consist mainly of former active-duty personnel. The Marine Corps also maintains an active full-time support program. This program maintains a strength of 70 percent active-duty personnel, whose full-time job is to support and train Reservists. These active-duty personnel provide the current operational and technical expertise that is hard to maintain in a Reserve Force. "Without {the} leadership and support of the Active Marine Force, the readiness of the Reserves would

decline."[6] The high percentage of former active-duty personnel and full-time support program combine to improve the structure and integration of the Marine Corps Reserve.

The Marine Corps Reserve continues to procure new equipment along with its Active Force. "During the acquisition process, the Total Force requirements are identified, validated, and funded according to the first-to-fight policy."[7] This system ensures that the Marine Corps meets its goal of providing new equipment to the Active and Reserve Force at the same time. Along with its joint equipment modernization program, the Marine Corps continues to upgrade the Reserve and Active Force facilities across the board. These policies improve the integration of the Marine Reserve Force and Active Force.

The most essential element of the Marine Corps Reserve system is training. The Marines believe that aggressive, realistic individual and unit training is essential for the Reserves' success. The Marine Corps has several innovative programs that concentrate on individual training. However, the Marines' real success comes from unit training. On a regular basis, the Marine Reserve Forces conduct training with their Active counterparts. The Marine Corps assigns and requires its Reserve rifle companies to train with active-duty battalions. On a daily basis, Reserve CSS units support active-duty Marine Corps units. This dynamic relationship between the Active and Reserve Marine Corps units has led to a successful Marine Total Force.[8]

The Army's Total Force concept resembles the Marine Corps' but fails to rigorously follow the Army's own guidelines. In his article, "Total Force Policy Examined in Wake of Desert Storm," Major General (MG) T. Eston Marchant concludes that the Army Reserve training focus must change. MG Marchant writes, "Prior to mobilization, the basics of gunnery; maintenance; and squad-, crew-, platoon- and company-level maneuver must be mastered. Task force- and brigade-level maneuver should be trained primarily through staff exercises and battle simulation exercises".[9] MG Marchant spells out that the Army's concept of training before mobilization must be improved. The Army also has been slow at ensuring the roundout brigades receive the same equipment as their Active counterparts. In Operations Desert Shield and Desert Storm several NG combat units did not deploy because they had not had enough time to train on their new equipment.

An Army Total Force partnership as successful as that of the U.S. Marine Corps needs to be developed. For the Aviation elements of the Reserve Components (RC) of the Army Total Force, this means that the roundout and roundup Reserve and NG Aviation units must be similarly equipped as their Active Component (AC) counterparts. The Directed Training Association and CAPSTONE affiliation programs need to be put on the front burner with greater emphasis and AC responsibility for RC individual training as well as collective training.

Locations of some RC units may need to be changed to faciliate monthly training with their affiliated units. Relocation of RC flying units may not be as necessary as for road and rail transported elements. But each affiliation needs to be examined and decided on an individual basis. A policy of actively recruiting RC Aviation personnel and giving preference to AC Aviation experienced personnel leaving the services would ensure that RC Aviation units are kept current in the latest policies, procedures, training, and maintenance techniques currently used by AC Aviation units.

The proposed budget and Total Active Force cuts have made the Total Force partnership critical to Air-Land Operations. Results from Operation Desert Storm show the inability of the Army to execute the Total Force concept. Failure of the roundout brigades to deploy to Saudi Arabia resulted from a lack of integration between Active Army and the RC. To prevent future problems, the Army should study and learn from the Marine Corps' execution of the Total Force. The Marine Corps successfully integrates its Active and Reserve Forces by maintaining similarities in structure, equipment, and training. With future cuts in military strength, the Total Force is not merely important, it is critical to our national survival.

NOTES

1. Bruce B. Auster, "Can Reserves Do the Job?" ***U.S. News and World Report***, 28 January 1991, p. 40.
2. General H. Norman Schwarzkopf Jr., "The 48th InfantryBrigade (Mech), Georgia Army National Guard: A Chronology from Invasion to Demobilization," ***National Guard***, May 1991, p. 13.
3. Ibid., pp. 12-15.
4. MG T. Eston Marchant, "Total Force Policy Examined in Wake of Desert Storm," ***National Guard***, August 1991, p. 23.
5. Hollis E. Davison, "Active/Reserve Relationship Acts to Enhance Corps," ***The Officer***, February 1991, pp. 68-70.
6. Ibid., p. 72.
7. Ibid.
8. Ibid., pp. 68-74.
9. Ibid., p. 23.

The Army's Mobilization

"Roundout is a fact of life . . . the 48th Brigade, Georgia Army National Guard, is the third brigade of my division . . . I expect them to fight alongside us. They have demonstrated (their capability) through three demanding rotations at the National Training Center . . . they are, in fact, combat ready."

Major General H. Norman Schwarzkopf Jr.
(when he commanded the 24th Infantry Division (Mech))

Of National Guard Units

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The success of our armed forces in Operations Desert Shield and Desert Storm proved, to a degree, that America could mobilize its forces with a certain amount of effectiveness. However, the buildup was not without its problems. The United States and other countries of the United Nations had more than 5 months to build their forces in the Persian Gulf.

Problems

Mobilization of a large force naturally creates problems. Most of these problems are organizational, as they pertain to the National Guard's (NG's) mobilization to active service, and the Active Army's attitude toward the NG. For example, Army National Guard (ARNG) AH-64 Apache battalions, certified through Fort Hood, TX, were not called.

Several state aviation officers and state adjutants general voiced concern that the Army has a system to determine the readiness of any given unit but does not trust the system. ARNG combat units met all stated Army standards of training, manning, and equipping; however, these units were not mobilized or deployed. The problem may lie in the Regular Army's (RA's) attitude toward the NG and not necessarily the process.

This example of the Army's attitude toward the NG dates back to World War II. In February 1941, the 29th Division (Blue and Grey), an NG Division from Maryland and Virginia, mobilized and eventually went to England. Active Army officers replaced the senior leadership after the NG Division completed the organizational work. This created a huge morale problem in the ranks of the 29th Division. The prejudice that RA officers had against NG officers drastically reduced the Guard's confidence.

A parallel can be drawn between this example and what happened in the most recent callup for Operations Desert Shield and Desert Storm. The argument could be made that the Army wants the NG trained and up to speed, but does not want to provide any guidance or help to ensure NG units can fully accomplish this. NG units are left to themselves when it comes to training. Under the CAPSTONE program, an NG unit might receive an Army Training and Evaluation Program to determine its readiness, but not necessarily its CAPSTONE organization. If it is to use the CAPSTONE program, the Army has to commit to the part of the program pertaining to mission readiness.

Inconsistencies

The May 1991 issue of ***National Guard*** magazine contains General H. Norman Schwarzkopf Jr.'s article, "The 48th Infantry Brigade (Mech), Georgia Army National Guard: A Chronology from Invasion to Demobilization." The article discusses the inconsistencies and problems the Army had calling up ARNG units. It is a good example of why the Army should consider the Operational Readiness Inspection (ORI) program.

On 7 August 1990, President George Bush signed the Declaration of National Emergency. This gave the Department of Defense (DOD) all of the authority it required to implement a partial mobilization. It permitted a 1-million man callup in late August 1990,

citing the 180-day limitation. Under partial mobilization, DOD never had any such restriction. Around that same time, DOD alerted the 24th Infantry Division (Mech) to begin uploading its equipment for the Persian Gulf. Final elements of the 24th Infantry Division did not reach Dhahran Harbor until November 1990. This would have given the 48th Brigade (Mech) 75 postmobilization training days by the time final elements of the 24th Infantry Division reached the Persian Gulf. The division was fully "stoodup" had it been mobilized on 24 August 1990.

Instead, the 48th Brigade had no idea when or if it might deploy because it did not receive an alert. The 197th Infantry Brigade (Mech), the resident brigade at the U.S. Army Infantry School, Fort Benning, GA, went in the 48th Brigade's place in a C-5 status (needing new equipment training). The 197th Infantry Brigade had received M-60A3 tanks and M-113 personnel carriers on 2 August 1990. According to Department of the Army (DA) data, the 197th conducted no field training above battalion level in fiscal year 1990. The 197th conducted only one brigade-level field training exercise at Fort Stewart, GA, with the 24th Infantry Division after being alerted.

On 22 August 1990, President Bush signed the 200,000 673(b) callup order. On 24 August 1990, Secretary of Defense Richard B. Cheney issued instructions to call up only combat support (CS) and combat service support (CSS) units. The first CS and CSS ARNG units received their call on 27 August 1990. The decision to avoid calling ARNG combat units came 1 day after General Carl E. Vuono told senior military association executives, including a representative from the National Guard Association of the United States, that the 48th Brigade callup would be announced the next day. It did not occur for more than 3 months.

In early September 1990, Congress asked Secretary Cheney why ARNG combat units were not being called up. Secretary Cheney said the 180-day callup time did not allow enough time to call, train, and deploy the units. Senior DOD officials explained the 200,000 callup authority did not allow enough time to permit a full rotation. General Colin Powell, Chairman of the Joint Chiefs of Staff, said that, if the 200,000 authority added a 180-day extension to the original 180 days, the Army would call up combat units. At the same time, the 24th Infantry Division and its 197th "roundout" Brigade took 90 days to reach Saudi Arabia.

On 8 November 1990, Secretary Cheney announced, at a Pentagon press conference, the near doubling of U.S. Forces in the Persian Gulf and the callup of the three roundout ARNG brigades. General Powell said a "workup" would be necessary to ensure the combat readiness of ARNG units. This would include a trip through the National Training Center (NTC), Fort Irwin, CA, even though the 48th Brigade had gone through the NTC the previous summer and did well against the NTC's Soviet opposing forces doctrine. Before 2 August 1990, all brigades in the 24th Infantry Division, including the 48th, reported almost identical combat-ready status.

On 30 November 1990, the 48th Brigade reported to its mobilization station, Fort Stewart, to find the previous combat readiness rules that it understood with its parent units changed. The parent organization rated the brigade "combat ready" before 2 August 1990. However, the Brigade did not receive this rating upon reaching the mobilization station. The 48th Brigade had to certify to a C-1 readiness status, rather than to a lower combat readiness rating. Remember, the 197th deployed in a C-5 status. Additional tasks that ***none*** of the active units deployed had training in included counterreconnaissance, advanced guard, and repositioning. No doctrine exists for repositioning. A sudden requirement to be fully qualified at the grade level assigned, rather than a generic qualification by position, left the noncommissioned officer (NCO) corps unqualified in the military occupational specialty and diverted many NCOs for further training. This action broke up crews who had worked together for years.

The 48th Brigade's maintenance problems received a lot of publicity. The problems stemmed from maintenance personnel being required to undergo computer training on the new maintenance software. This meant units were not being supported by maintenance personnel and resulted in significant maintenance breakdowns. The 48th Brigade's unit status report, known by 2d Army and U.S. Army Forces Command, rated the brigade combat ready the day it reported to Fort Stewart, with a recommendation for 42 days' postmobilization training. As stated earlier, mobilizing the 48th Brigade with the 24th Infantry Division would have given it 75 postmobilization training days.

On 7 January 1991, the 48th Brigade began the move to Fort Irwin, CA. Upon arrival, the brigade's leaders found that the brigade would receive the "crawl, walk, run" training program of instruction. Training accomplishments, such as tank gunnery during the previous annual training period, received no credit.

On 28 February 1991, the 48th Brigade was certified combat ready by the 2d Army Commander, Lieutenant

General James Crysel, 51 days after its arrival at the NTC. That same day the ground war ended and President Bush announced the cease-fire.

The most militarily uneducated individual should see that the Army's system for mobilizing ARNG units does not work . . .

On 4 March 1991, the 48th Brigade prepared to move back to Fort Stewart. On 11 March 1991, Secretary Cheney demobilized the 48th Brigade at Fort Stewart and ordered it to return to home stations.

The most militarily uneducated individual should see that the Army's system for mobilizing ARNG units does not work as effectively as it should. There is duplication of training, such as, reassignment of personnel, new equipment training, and requiring NG units to make additional rotations through NTC without regard to some NG units having successfully completed a rotation the previous year.

The Army should restructure its method of evaluation. The U.S. Air Force uses the ORI system, which validates or certifies NG and U.S. Army Reserve (USAR) units on an annual basis, depending on the unit's mission and deployment time. An inspection team from the gaining command conducts the ORI. The team looks at all areas, resource areas, spare parts, performance of ground and aircrews, scenarios, closed book testing, etc.

The five levels of capability in all inspection reports that require the use of a rating system are as follows: outstanding, excellent, satisfactory, marginal, and unsatisfactory. These levels describe the overall rating of major grading areas, subareas, and other functional areas. Team chiefs may assign ratings that reflect observed performance regardless of statistical outcomes. However, when ratings differ greatly from established criteria, an explanation should be given. A unit found to be deficient in an area must respond in writing to the gaining command as to how the unit will correct the problem. The unit is placed in a downgraded status until the deficiency is corrected. All of this ensures that the Air Guard and Reserves are combat ready at all times. The units are certified by the gaining command before mobilization rather than after mobilization. If the ORI program had been in place at the time, the 48th Brigade would have been able to deploy with the 24th Infantry Division.

Suggested Solutions

The Active Army, the ARNG, and the USAR must make an effort to solve the problems of mobilization. Close coordination must take place. The DA, DOD, and the National Guard Bureau (NGB) must take a close look at equipment shortages in the NG and RA inventories. Adjutants general, NGB, and the Active Army should use a memorandum of understanding (MOU) to facilitate lines of communications among them. An MOU also defines what an organization has and how to use what it has.

The Army has all of the assets to conduct an ORI-type inspection, but the organization is not there. Fixed responsibility and authority for training subordinate NG and USAR units must take place. For example, the commander of the 18th Aviation Brigade would be responsible for training the two NG battalions in his command.

Gaining commanders would enforce standards set by Fort Rucker, AL. All units found to be deficient in given areas would have to respond, in writing, to the gaining command, and explain a course of action to correct the deficiency.

There are many other aspects to the mobilization of NG units than time and the author's knowledge permit. This article does not attempt to solve the problem of training and evaluating NG and USAR units. It merely suggests a course of action to take, and tries to bring to the reader's attention the fact that the Active Army does not give the NG the credit it deserves.

The Active Army should realize that it is going to have to fight with, and rely on, the NG and the USAR in an extended conflict. With this in mind, it seems obvious that the Army should oversee and train the NG and USAR to the standards it trains itself.

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Army Aviation Between WWII

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How did the Army and Air Force define their separate roles between WWII and the Korean Conflict? Once defined, how did each effectively operate and function to complement the other without arguing over who did what and getting in the other's way? How did the Army solve the problem of the Air Force's control of Army Aviation training? Regulations of 1949, functions papers, and other arguments and proposals that reigned between WWII and the Korean Conflict, 1945 to 1950, answer these questions.

For several months following the end of World War II (WWII), organic Army Aviation maintained its inventory of aircraft and also continued to train pilots and mechanics at a steady pace—even as the Army was scaling down most other operations.

As a result of the expansion of organic aviation to branches of the Army Ground Forces (AGF) other than Field Artillery, the Department of Air Training of the Field Artillery School at Fort Sill, OK, was reorganized as the AGF Air Training School effective 7 December 1945. The commandant of the Field Artillery School, Major General Louis E. Hibbs, became commandant of the new AGF Air Training School as well. Actual administration of the school was under the direction of the assistant commandant for air training, Colonel (COL) William W. Ford.[1]

The Army Air Force (AAF) continued providing primary flight training at Sheppard Field, Wichita Falls, TX, until May 1946, when this training program was transferred to Gary Field, San Marcos, TX.[2]

Decline and Resurgence

Coincidentally with the establishment of the AGF Air Training School, the supply of students began to decline. All classes in session on 7 December 1946 were permitted to finish, but the beginning of new classes was delayed. The first class for mechanics after the reorganization did not begin until 21 January. The start date of the first 1946 pilots class was delayed until 11 March when enough students were finally assembled.

Besides reducing the number of classes, the Air Training School eliminated seaplane training from the curriculum and reduced the time devoted to the Brodie device.[3]

In November 1946, as a result of demobilization throughout the Army and the consequent shortage of students, the Air Training School was discontinued. It was replaced by a new Department of Air Training, with COL Ford as director, established within the Field Artillery School.

The general demobilization of the armed forces affected Army Aviation in another way. Beginning in early 1946 and continuing through mid-1947, the number of aircraft in the AGF inventory rapidly declined. From a WWII high of around 3,000, the aircraft inventory was reduced, through disposition by the Surplus Property Board and otherwise, to between 200 and 250.[4]

Even as its aircraft inventory was being reduced sharply, organic Army Aviation continued searching for the most appropriate aircraft for its various missions. In a design competition held shortly after the end of the war, the Army selected the Boeing L-15; this aircraft failed the field tests, however, so the search continued.

In a finished-article competition held in early 1947, the winner was

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the Aeronca 7BC Champion. This two-place aircraft, similar to the WWII era L-3, became the Army L-16.

Between 1947 and 1949, the Army purchased over 500 eighty-five horsepower L-16As and around 100 ninety horsepower L-16Bs. The L-16B had a gross weight of 1,450 pounds and a maximum speed of 110 miles per hour. The Army bought these aircraft for the bargain price of around $1,200 each, complete with spare parts and data packages.

The Army also bought over 200 four-place Ryan L-17s during the late 1940s. This purchase also resulted from a finished-article competition. Although some Air Force leaders expressed reservations about the Army's acquisition of the higher power and larger capacity L-17s with retractable landing gear, no major problem arose. Both the L-16s and the L-17s served the Army well until they were replaced by Bird Dogs, Beavers, and Seminoles during and after the Korean conflict.

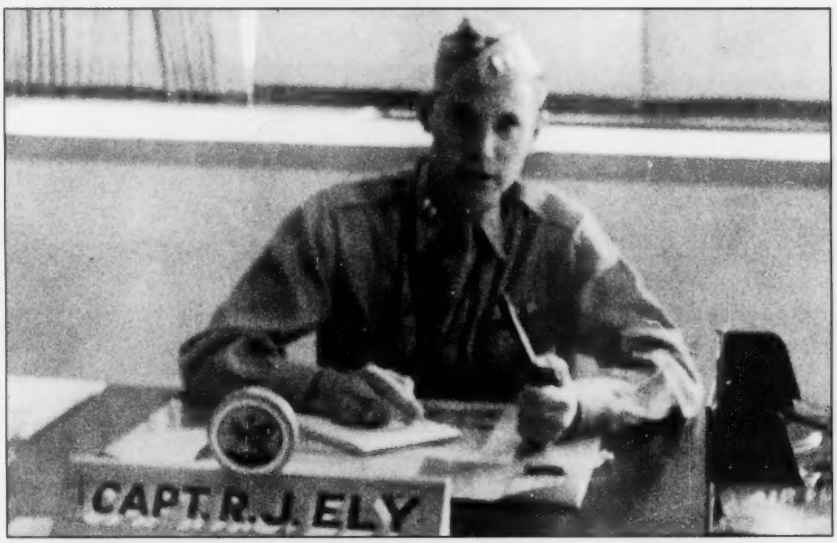
As of 30 June 1950, the Army and Army National Guard inventories consisted of 1,155 fixed-wing aircraft. This total included 664 L-16s, 228 L-17s, 219 L-5s, and 44 L-4s.[5]

The National Security Act of 1947

The National Security Act (NSA) of 1947 abolished the War and Navy Departments, created the Department of Defense (DOD), and made the U.S. Air Force (USAF) a separate service coordinate with the Army and Navy. President Truman signed the act in July, and it was implemented in September.

James Forrestal became the first secretary of defense (SECDEF) on 17 September. Transfer Order No. 1, signed by Secretary Forrestal on 26 September, transferred military personnel, bases, and equipment of the former AAF to the Department of the Air Force and the USAF. The division of assets and personnel was completed during the following 2 years through 39 additional transfer orders.[6]

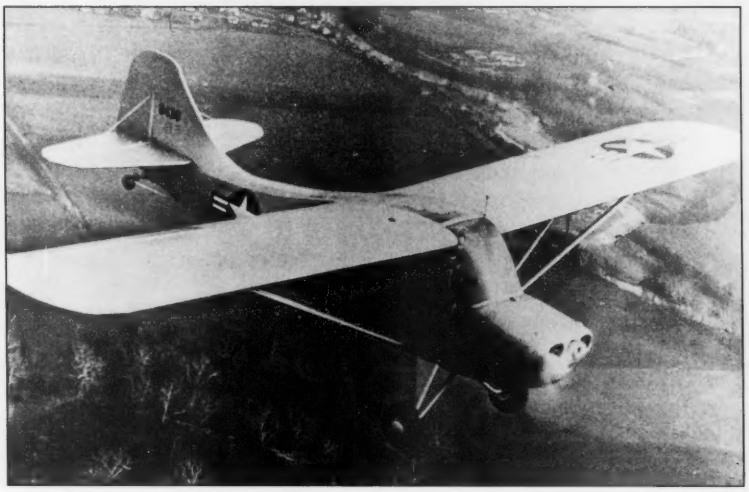
The NSA gave the Air Force general responsibility for aviation with specified exceptions. The most important exception was that the Navy and Marine Corps were



The first Army helicopter pilot was Captain (CPT) Robert J. Ely. CPT Ely graduated from the Army Air Corps Course at Scott Field, IL, in 1945.

Organic Army Aviation continued searching for the most appropriate aircraft. In a design competition held shortly after the end of WWII, the Army selected the Boeing L-15. The L-15 failed the field tests, and the Army continued to search for a suitable aircraft.

The L-16 replaced the L-15 as the aircraft suitable for Army Aviation's various missions. This two-place aircraft, also known as the Aeronca 7BC Champion, was similar to the WWII era L-3.



The L-17s served the Army well with their higher power and larger capacity.

given extensive authority to develop and employ air power. The only significant limitation on the use of air power by the Navy and Marine Corps was that strategic air operations were reserved to the Air Force.

Another exception to the Air Force's monopoly of military aviation, and one that is of particular interest to the student of Army Aviation history, related to the air arm of the AGF: organic Army Aviation remained with the Army. The key phrase in the National Defense Act was that the U.S. Army would consist of "land combat and service forces and **such aviation** and water transport **as may be organic therein**."[7]

To implement the National Defense Act, the Army and Air Force entered into more specific agreements published concurrently with the act. One of these agreements stipulated that—

- The Air Force would provide and operate liaison squadrons according to Army requirements;
- The Air Force would provide individual training to Army personnel for the operation and maintenance of organic Army Aviation equipment; and
- The Army would provide tactical training for pilots of organic Army aircraft.[8]

This agreement, for the most part, extended existing arrangements for cooperation in training aviation personnel; however, it also gave the Air Force the added responsibility to train organic Army Aviation mechanics. These cooperative arrangements were made to avoid duplication and promote cost effectiveness, but they often proved unsatisfactory to one or both parties during the process of or following implementation.

In late 1947, the Army proposed to modify and amplify existing agreements and understandings with the Air Force. Here were four proposals—

First, the Army wanted the Air Force to accept the Army's term "light" in lieu of the Air Force term "liaison" in all references to Army aircraft.

Second, the Army requested that the Air Force agree to the assignment of Army aircraft to Army organizations as individual units "or in groups of such size as to permit performance of assigned missions."

Third, the Army proposed that the new interservice agreement should stipulate that the Army would provide its own aircraft requirements whenever the **primary function** of such aircraft consisted of the following missions—

- Aerial surveillance of enemy forward areas
- Locating appropriate targets
- Adjusting fire
- Obtaining information on hostile and defensive forces
- Aerial route reconnaissance
- Control of march columns
- Camouflage inspection of ground force areas and installations

Fourth, the Army proposed that the Air Force continue to provide light aircraft service to the Army for courier service, messenger service, aerial evacuation, aerial supply, and aerial photography.[9]

The Army had been performing the missions listed in part three of the proposal throughout WWII. The extension of organic Army Aviation to branches of the ground forces other than Field Artillery in August 1945 at least tacitly recognized this.

The difference was that the Army now wanted the Air Force to formally recognize the Army's authority to use organic aircraft for **any** purpose in support of the ground forces when the **primary function** of the aircraft consisted of one of these listed missions.

Both the Air University and Tactical Air Command (TAC) objected to the 1947 Army proposal. The Air University opposed the use of the term "light" for Army aircraft because "light" did not indicate a limitation of function as did "liaison."

Also, in response to the Army's proposal to organize its aircraft in groups when required, the Air University countered that only Air Force aircraft should operate as aviation units and Army aircraft should be assigned only to operate organically in units of division size or smaller.[10]

The TAC opposition was much stronger; it recommended that the Army and Air Force negotiate a new agreement providing for the Air Force to assume responsibility for all liaison aircraft activities and that organic Army Aviation be abolished.

The arguments used included economy of forces, centralization of control, recognized doctrinal principles regarding the employment of air power, and the historical example of the expansionist tendency of organic Army Aviation.[11]

The Key West Agreement

In response to these and other disputes among the Army, Navy, and Air Force, the joint chiefs of staff held two series of conferences in 1948—the first at Key West, FL, and the second at Newport, RI. The agreements or "Functions Papers" worked out at these conferences were issued as directives by the SECDEF.

The first of the Functions Papers, also known as the "Key

West Agreement," was signed on 26 March 1948. It effectively stymied the efforts within the Army to expand the functions of Army Aviation.

This was accomplished in part by listing among the functions of the Air Force: furnishing close combat and logistical air support to the Army, and secondly, providing air transport for armed forces except as otherwise assigned.

The first of these functions was defined as including airlift, support, and resupply of airborne operations; aerial photography; tactical reconnaissance; and interdiction of enemy land power and communication. The Key West Agreement also withheld from the Army any mission assignment that would justify force requirements for airlift, tactical air operations, or air defense other than antiaircraft artillery. In the development of doctrine, procedures, and equipment for air defense and airborne operations, however, the Air Force was required to coordinate with other services.[12]

JAAF Adjustment Regulations 5-10-1

Neither of the 1948 Functions Papers provided significant satisfaction to the proponents of organic Army Aviation, except that it was not abolished as some Air Force leaders advocated. In the ***Joint Army and Air Force (JAAF) Adjustment Regulations 5-10-1*** of 20 May 1949, however, several of the Army's proposals of the previous 2 years were recognized and implemented.

The 1949 regulations stipulated that organic Army aircraft consist of "aircraft used by the Army for the purpose of expediting and improving ground combat procedures in the forward areas of the battlefield."

The functions of Army Aviation included those proposed by the Army in 1947 plus the following—

- Local messenger and courier service
- Emergency aerial evacuation
- Emergency wire laying
- Limited aerial resupply
- Limited front-line aerial photography

Thus Army Aviation was specifically authorized to conduct most of those functions performed during WWII, and other possible missions were not precluded. Furthermore, the Army was authorized to assign or attach aircraft to Army organizations "individually or in such numbers as are required to perform assigned missions." As a symbolic Army victory, the term "liaison" was not used in the regulations with reference to Army aircraft, referred to as "fixed-wing aircraft" and "rotary-wing aircraft."

The 1949 regulations further stipulated that the Army was to determine quantitative requirements and budgeting for its aircraft, accessories, and parts. The Army was also responsible for its own unit and field maintenance. The Air Force was to budget for and provide "liaison aircraft units" when the Army required such units for the following specific functions: courier service, messenger service, aerial evacuation, aerial supply, aerial photography, and aerial wire laying.

On the downside, from the perspective of proponents of an expanded organic Army Aviation independent of Air Force controls, the Air Force was to purchase aircraft, parts, and accessories for the Army and store and issue them at the depot level. The Air Force also was responsible for depot maintenance of Army aircraft and for field maintenance in overseas commands until June 1950. Also, the weight of Army fixed-wing aircraft was not to exceed 2,500 pounds when empty, and Army rotary-wing aircraft were limited to an empty weight of "3,500 to 4,000 pounds."[13]

The 1949 regulations did not address the issue of the training and rating of Army pilots, thereby leaving primary training and rating of Army aviators under the control of the Air Force.

Effect of the Cold War on Air Force Tactical Air Support

Another issue that produced friction between the Army and the Air Force during the late 1940s was the degree to which the Air Force provided the required aerial support to the Army. This was primarily an Army-Air Force dispute rather than specifically an organic Army Aviation-Air Force dispute. It nevertheless impacted on the evolution of the Army's air arm in that the Army came to insist on using Army Aviation for these functions when they were not adequately provided by the Air Force.

As already explained, the Key West Agreement assigned to the Air Force the functions of establishing local air supremacy; providing air transport to the Army; and furnishing close combat and logistical air support to the Army.

During the late 1940s, especially after the Soviet Union became an atomic power, the attention of Air Force leaders, somewhat like that of their Army Air Corps counterparts during the 1930s, came to be dominated by strategic and air defense concerns.

This attitude was clearly detrimental to tactical air power and to close air support of ground forces. For example, the TAC was reduced to the status of a subor-

dinate command under the Continental Air Command from 1948 until it was restored as a major command after the beginning of the Korean conflict. During the late 1940s, the Air Force placed a low priority on the support of ground troops. The official Air Force position announced in October 1949 was as follows:

"Inasmuch as a democracy cannot afford to maintain a high standing army in peacetime, it follows that the peacetime requirement for air units to perform the air support mission is neither so large nor so urgent as that for units to perform the air defense and strategic bombing missions."[14]

The Air Force's neglect of the Army's perceived air support requirements during this period caused the Army to demand more influence in the design of aircraft for close air support, more air-ground training, air controllers better versed in ground tactics, and operational control of tactical support aircraft.[15]

The widespread perception that the Air Force was neglecting its responsibilities to the Army had an effect in Army circles similar to that of the Army Air Corps' emphasis on strategic operations during the late 1930s. A few Army leaders advocated returning the Air Force to the Army, but even more believed that the Army should at least consider providing its own tactical air support—as the Marine Corps, with its own tactical air arm, was able to do.[16]

The Army was averted from even preparing for any future expansion of its aviation functions by existing DOD-sanctioned agreements giving the Air Force control over all aviation research and development and over the procurement of aircraft and parts.

Although some Army leaders objected to the Air Force controls and to the Army's impotence in these areas during the late 1940s, there was no concerted effort to change the situation. As late as 23 March 1950, the continuation of effective Air Force control over research, development, and procurement was reaffirmed in identical Army and Air Force regulations.[17]

It was not until the Army's dependence on the Air Force for its aviation requirements caused problems in combat during the Korean conflict that the Army began to begin gaining control of some of these functions.

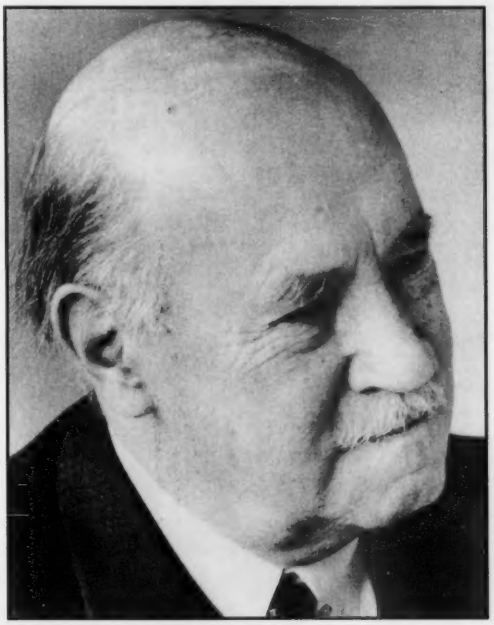
The Development of the Helicopter[18]

The AGF acquired their first helicopters, two-place Bell YR-13 utility/observation helicopters in January 1947. This was 7 years after Igor I. Sikorsky's successful tests of the single-main rotor VS-300 and 5 years after the AAF acquired the first Sikorsky XR-4.

The Army Air Corps/AAF had responsibility for development of all U.S. military helicopters during WWII and continued to control AGF/Army helicopter, as well as fixed-wing aircraft, development and procurement during the inter-war period.

By the end of 1947, Army Aviation had acquired 14 YR-13s and distributed them for evaluation and testing. The ground forces commander, General (GEN) Jacob L. Devers, requested authorization in 1947 for the purchase of 150 more utility helicopters and also recommended the rapid development and acquisition of cargo helicopters.

The request was approved by the acting chief of staff of the Army, but the Army was unable to obtain



Igor Ivan Sikorsky, 1889-1972, the Russian-born aeronautical engineer, helped to pioneer what Army Aviation is today. Some of the Army aircraft credited to his name include the R-4 Hoverfly, the first helicopter purchased by the Army Air Forces in 1943; R-5 Dragonfly; R-6 Hoverfly; H-19 Chickasaw; CH-34 Choctaw; CH-37 Mojave; CH-54 Skycrane; and the UH-60 Black Hawk.

In 1947, the YR-13 utility/observation helicopters were the first helicopters procured by organic Army Aviation. By the end of 1947, Army Aviation had acquired and distributed the YR-13 for evaluation and testing. The YR-13 has since become the YG-13, YR-13, H-13, and OH-13.

The Army acquired the Bell H-13B Sioux helicopters in 1948 and 1949.

An OH-13 hovers low over the ground.

The Sikorsky H-19 Chickasaw, designed as a larger utility helicoper in 1948 and used in the early 1950s, is now the UH-19 Chickasaw.

any more helicopters until late 1948 and early 1949, when it acquired around 60 Bell H-13B Sioux.

In 1948, the Army as well as the Air Force changed the helicopter letter designation from "R" to "H." The H-13 was the first Army aircraft named for an Indian tribe. After 1948, most Army aircraft were named for Indian tribes or Indian leaders. This practice was incorporated into Army Regulation No. 70-28 from 1976 to 1988 and has continued as a tradition since then.

The low priority that the Air Force placed on development and procurement of tactical aircraft during the late 1940s was especially true with regard to helicopters. The Air Force believed rotary-wing aircraft had only limited use in the nuclear age and, therefore, refused to provide adequate research and development funds for testing and procuring the helicopters that the Army believed it needed.

In 1948, Lieutenant General (LTG) James M. Gavin, in his capacity as president of the Army Airborne Panel, attempted to convince the Air Force director of requirements of the Army's need for more and larger helicopters. Finally, exasperated by LTG Gavin's persistence, the Air Force general replied—

"I am the director of requirements and I will determine what is needed and what is not. The helicopter is aerodynamically unsound. It is like lifting oneself by one's boot straps. It is no good as an air vehicle and I am not going to procure any. No matter what the Army says, I know that it does not need any."[19]

The Army was consequently unable to make significant progress in fulfilling its helicopter requirements before the beginning of the Korean conflict. As of 30 June 1950, the Army had only 56 utility-observation helicopters and no cargo helicopters on its inventory.

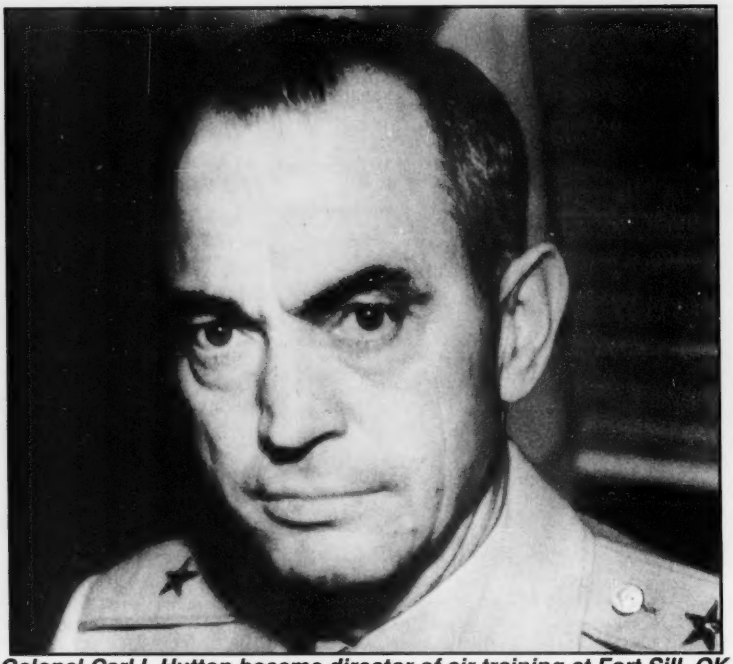
The Army's inability to obtain adequate quantities of the types of helicopters it required contributed significantly to the growing sentiment within some circles that the Army should obtain total control over its own aircraft development and procurement and that it should become more involved in the tactical air support of the ground forces.

Pilot and Mechanic Training

After 1945, the training of AGF pilots and mechanics declined sharply, and the total numbers for the interwar period were far below those for the WWII period. In comparison to the 2,630 pilots and 2,252 mechanics trained from June 1942 through 1945, only 486 pilots and 461 mechanics were trained from 1946 to 1949.[20]

COL Ford continued as director of air training at Fort Sill until August 1947, when he was replaced by COL Carl I. Hutton. In November 1949, Colonel Hutton was succeeded by COL Edward O. Hopkins, who remained in the position until October 1951.

On 25 February 1947, the commanding general of the AGF, GEN Devers, and the commanding general of the Air Training Command, LTG John K. Cannon, met informally at Fort Monroe, VA.



Colonel Carl I. Hutton became director of air training at Fort Sill, OK, in August 1947.

They agreed the AAF would continue conducting basic flight training for ground forces student pilots and rating them as liaison pilots.

The two generals further agreed that the ground forces would conduct operational and tactical flying training as well as first and second echelon maintenance training for ground forces aircraft in the Department of Air Training at Fort Sill and that the two commands would coordinate with each other to promote effective training of aviation personnel in the AGF.[21]

Later in 1947, the Army agreed to turn over maintenance training to the Air Force. In September, the secretary of the Army ordered that the Army discontinue the training of liaison aircraft maintenance mechanics upon the graduation of the current class. Future training of ground forces aircraft mechanics would be conducted by the Air Force.

Should the AGF commander deem it advisable, however, he could establish short courses for specialized maintenance training peculiar to ground forces aircraft and units.[22]

Before 1947, some AGF helicopter pilots were trained by the AAF and others by Bell Helicopter Corporation. Beginning in mid-1947, the AAF/U.S. Air Force provided rotary-wing flight and maintenance training for Army personnel. The flight training was conducted at Gary Field, and the maintenance training, at Keesler Field, MS. Ten pilots and 10 mechanics were to be trained each month.[23]

In early 1948, after fixed-wing maintenance training began at Keesler Air Force Base (formerly Keesler Field)[24], the procedures and responsibilities for training fixed- and rotary-wing pilots and mechanics became standardized. Primary flight training for both types of aircraft was conducted by the Air Force Air Training Command at Gary Air Force Base, with tactical training for fixed-wing aircraft conducted by the Department of Air Training of the Field Artillery School at Fort Sill.

All Army aviators were required to complete both the 5 and 1/2 week, fixed-wing, basic course and the 3-month, fixed-wing, tactical course. A portion of them were then sent back to Gary for the 4-week helicopter course.

In early 1949, the Air Training Command and all Air Force training of Army aviators were moved to Connally Air Force Base, Waco, TX. Shortly afterwards in April 1949, the maintenance courses for Army personnel were moved from Keesler to Sheppard Air Force Base, TX.[25]

In 1948, the Army became dissatisfied with the quality of rotary-wing training provided by the Air Force and decided that additional training was required; it consequently established the advanced tactical helicopter training course at Fort Sill in November. Beginning in January 1950, all Army personnel were required to attend the new course at Fort Sill upon completing the Air Force helicopter training course.

The Army also admitted WWII observation pilots to the tactical helicopter course at Fort Sill without attending the Air Force Helicopter School. Neither the Army nor the Air Force required large numbers of helicopter pilots, and the two programs were increasingly in competition for students.

In August 1949, the Air Force program was extended from 4 to 5 weeks, and the class capacity was reduced to six students. When the Korean conflict began, the Army was studying the possibility of consolidating all helicopter training at either Fort Sill or Connally

Air Force Base, but the outbreak of war caused the consolidation study to be shelved.[26]

Neither the Army nor the Air Force was satisfied with the training programs as they operated during the late 1940s, under the auspices of various existing agreements between the two services. The Air Force complained that the Army did not fill the quotas established for Army trainees and then requested increased quotas on short notice.

The Air Force also charged that Army trainees had a high training attrition rate because of the Army's refusal to use the flying aptitude test used by the Air Force. The Army complained that the pilots produced by the Air Training Command required extensive additional basic training when they reached Fort Sill; the Air Force did not provide training in the type aircraft used by the Army; the basic rotary-wing course was too short; insufficient numbers of graduates were produced; there was a shortage of instructors; and there were serious maintenance problems at the Air Training Command facilities.[27]

Some of the training problems were resolved during 1949, and both the fixed-and rotary-wing training programs at Connally operated more smoothly during the latter part of the year. At that time, however, the Army had annual production goals of 120 fixed-wing and 60 helicopter pilots, and these goals were not reached—at least in part because the number of trainees furnished by the Army was inadequate.

The maintenance training program was even less successful. The Army required 200 liaison mechanics and 60 helicopter mechanics annually, but Sheppard produced only 80 of the former and 16 of the latter between June and December 1949. According to Air Force analysts, this problem also was caused by the failure of the Army to provide sufficient numbers of trainees.[28]

The JAAF Adjustment Regulations of May 1949 (discussed earlier) addressed the maintenance training problem by authorizing the Army to conduct Army-specific maintenance training, while leaving the Air Force responsible for all maintenance training common to both services.

In late 1949, the Army issued a regulation stating that the "training of Army officers . . . as aviators and aviation officers is the responsibility of the Department of the Army." The same regulation also stated that the Army was responsible for conducting individual training for organizational and field maintenance of Army aircraft, but that the Air Force would be requested to provide technical training to maintenance specialists that were common to both services.[29]

Although the Army's claim to have responsibility for training Army aviators appears to have contradicted existing Army-Air Force agreements, the Army took no steps to change the existing training arrangements at that time, so the question remained moot.

By mid-1950, the primary flight training provided for the Army by the Air Force had become unique as well as anachronistic in that it was the only primary flight training program that the Air Force still conducted with Air Force instructors. All primary training for Air Force pilots was conducted through contract with civilian schools.

The Air Force continued training Army pilots, however, because contracting that function to a private company would constitute an admission that there was no valid reason for Air Force control over Army Aviation training.[30]

Although Army Aviation personnel and many Army leaders clearly wanted control over all Army Aviation training, a decision was apparently made in 1950 to compromise on that issue and to gain another long standing Army Aviation objective instead. Accordingly, one year after the Army asserted that it had responsibility for its own training, it confirmed the arrangements for the Air Force to conduct basic flight training for the Army in a special regulation of 25 September 1950.

A more important part of that same special regulation was that the Army also established the authority of the Chief of Staff, U.S. Army, to award the aeronautical designation of "Army Aviator" to student officers who completed the tactical training course at Fort Sill.[31]

The AGF/Army finally gained the rating authority desired and sought since 1942. Not only was Army Aviation able to survive the demobilization following WWII, but it began a steady resurgence, even before the beginning of the Korean conflict in June 1950.

The number of aircraft in the Army inventory increased constantly from the time of the NSA of 1947. The JAAF Adjustment Regulations of 1949 considerably expanded the mission of Army Aviation.

In mid-1950, the Army's air arm was still dependent on the Air Force for some training as well as for aircraft development and procurement. Even so, Army Aviation was posited to provide effective and essential support to the AGF during the Korean conflict and to further expand its mission in the process.

ENDNOTES

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How Do Newspapers Report Army Aviation Aircraft Mishaps?

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Army Aviation is an ever-increasingly technical field. Aircraft such as the AH 64-Apache, UH-60 Black Hawk, OH-58D Kiowa Warrior, and CH-47D Chinook attest to that fact. Indeed, Army aviators fly in an increasingly technical environment with the use of night vision devices and newer communication equipment.

Operation Desert Shield/Desert Storm answered many questions about Army Aviation technology for the Army Aviation community. Our technology worked better than we had hoped and new applications were found. In fact, media accounts of the Persian Gulf conflict raised the Army Aviation's weaponry of war to heroic levels.

However, many Army aviators who followed coverage of the war recognized a number of familiar trends in media reporting that they had seen in peacetime. In many cases, reporting on Army aircraft technology was inaccurate, incomplete, or "downright" false.

The apparent breakdown in communications between the press and the Army on technology means that the Army should redefine its relationship with the press and develop specific guidelines for the media in reporting on military subjects. A more thorough understanding of Army Aviation technology by the press should result in more accurate reporting by our newspapers.

It is disturbing to review the way the press reports aircraft mishaps and the use of night vision goggles (NVG). To point out any problems in media reporting and offer a simple solution to them, we must first examine the criteria reporters use in developing and presenting news.

Criteria for reporting news

What is news? First, we should agree on the definition of the term

news for which there is no text definition; however, most journalists agree on its characteristics. New stories that are actually printed normally contain these elements: **timeliness**, **importance**, **prominence**, **proximity**, and **human interest**. A journalist may determine if an Army aircraft mishap has a potential story by applying these elements in the examination of the mishap.

Timeliness. Because of the rapid and constantly evolving nature of news, timeliness is possibly the primary factor to use in determining if a story is to be printed. An aircraft mishap probably will be reported in a newspaper within 24 hours—any longer and the mishap would more than likely cease to be news.

Importance. How important is the story? If an aircraft mishap occurs at Fort Rucker, AL, it probably is not important to the reader in Nome, Alaska. If the mishap involves a recently deployed aircraft or the mishap is combat related, however, the importance of the story increases.

Prominence. Prominence is the trickiest of the criteria because it means so many things to so many people. An aircraft itself may be novel, as with the RAH-66 Comanche when the mockup was deployed to the U.S. Army Aviation Center at Fort Rucker, AL; or the pilot or crew may be prominent. Prominence tends to be more apparent the more localized the story; for example, readers fron Fort Rucker, AL, would take notice of a story about people in a close town if the story involved personnel from Fort Rucker.

Proximity. Closely related to prominence is the proximity of the story. Local newspapers consider local stories more newsworthy than those that occur far away. But proximity can be psychological as well as physical—case in point, the Gulf War.

Human interest. Finally, the reader of a newspaper story must be interested in the subject to consider the story newsworthy. Human interest derives from the fact that we all want to know what is going on in the world around us.

Survey of newspaper articles

Two factors that affect a journalist's treatment of news are objectivity and accuracy. Every journalist strives for objective and accurate reporting. However, given the highly technical nature of Army Aviation, most journalists cannot be expected to understand and report accurately on the subject. Not all of this is the professional reporter's fault.

On examination of 40 major metropolitan newspaper articles, published between 1986 and 1991, one can see trends that tell how the Army may have contributed to this miscommunication.

First trend. In only 6 of 40 articles on Army aircraft mishaps and NVG use were Army spokespersons positively identified, and by name, as having some expertise in Army Aviation. Other spokespersons, if identified by name, were not identified as having any relevant experience with, or expertise in, aviation technology. From a journalist's standpoint, this is like having an accountant brief a group of Army officers on elephants.

Credibility of the source is an important attribute in a news story. The journalist can depend more readily on a story's accuracy and objectivity if the source is knowledgeable on the subject. Unfortunately, most Army public affairs officers are not aviators.

Constraints on disclosure of information pertaining to an aircraft mishap, such as notification of next of kin, classified technology, and initial speculation of cause, must be observed. Army Aviation specialists are readily available, however, to give thoughtful, accurate information and assistance to public affairs personnel.

Second trend. The second trend was even more disturbing than the first. None of the articles on Army aircraft mishaps were indepth followups to an original story. None of the 40 stories were about the results of an aircraft mishap investigation. The original mishap had either lost its timeliness as a newsworthy story, or the Army did not make the results of the investigation available to the press.

For understandable reasons, certain aspects of an Army aircraft mishap investigation always will have to be held in strict confidence and not be disclosed to the public. The privacy of the individuals involved in the mishap and legitimate security issues always must be observed, but timely notice to the press that the investigation has been concluded would enhance the Army's standing as a creditable source. Results of the investigation, as far as they can be released to the public, should be briefed to the media. This will help to educate journalists about Army Aviation.

Guidelines for reporting on aviation technology

Unfortunately, most newspapers do not have rules for professional journalists when reporting on an Army aircraft mishap or NVG. Most newspapers do not differentiate these subjects from any other type of story. This is a major pitfall that needs to be addressed. Because of Operation Desert Shield/Desert Storm, journalists are looking at the way they report on military technology.

10 Rules for Reporting on Aviation

1. **Don't jump to conclusions**. Rely on statements made by qualified experts and check theories with people who know aviation before you use them.
2. **Be cautious of eyewitness reports.** While they are an invaluable source of information, these reports are given most frequently by untrained observers who may not know what they have seen. One way to avoid problems is to focus on the consensus of the eyewitnesses rather than individual accounts.
3. **Avoid oversimplification.** In a desire to make a complex subject understandable, it's easy to make misleading parallels. Airplanes don't operate like automobiles or most other familiar forms of transportation. For example, one common error is to consider the age of an aircraft to be significant. Because of the performance requirements and certification procedures, the year the aircraft was manufactured usually is not an indication of how reliably it will perform. The manner in which it was used and the environment in which it was flown may be more important factors.
4. **Attribute statements and conclusions.** This will assist your audience in determining how qualified the source is to comment and will reduce the chance that speculation and erroneous information will creep into the story.
5. **Put the story in perspective**. It's easy when an event is large and catastrophic to overlook the fact that it is also uncommon. For example, stories about accidents involving "the same type of aircraft that crashed . . ." rarely mention that other copies of the same type of aircraft have flown regularly for years with no problems at all.
6. **Understand the rules**. For the most part, people involved in aviation and space will provide straightforward, factual information on request. If they won't, there's usually a good reason. A good example is the release of the names of passengers and fatalities. Government agencies and most airlines have policies that require notification of next of kin before casualty lists are released to the media. It's a rule that won't be broken for any deadline.
7. **Don't expect to interview survivors of an aircraft accident immediately after a crash**. Not even official investigators will attempt to question them without medical and legal approval. Survivors are not sequestered, but the investigators understandably prefer to get first interviews while memories are fresh.
8. **Obey the law**. It's easy to run afoul of law enforcement officials at an accident site in the rush to get the facts. Ignoring a safety cordon can get your arrested. At the scene of a crash involving government aircraft, the presence of classified information or hardware can make security tight. Ignore the security and you'll likely have your notes and negatives confiscated by federal agents or other interested parties.
9. **Stay courteous**. At an accident site, your needs are not a priority. The accident is. Don't expect any of the professionals to interrupt the primary task to spend time with you. Attending briefings and "question and answer" sessions may seem mundane, but they are the best source of reliable information.
10. **Ask for help**. There are people at the accident site who are assigned to assist you. Learn who they are and use them. In particular, the public affairs/relations representatives can help to meet your needs without unnecessary problems. Use the sources that are available to you including manufacturers, industry spokespeople, government agencies, and other sources. They can help round-out your story with accuracy. (***Air Accidents and the News Media***, 1991, pp. 6-7.)

The only professional society that has developed guidelines for reporting on aviation is the Aviation/Space Writers Association, headquartered in Columbus, OH. This organization publishes an pamphlet titled, ***Air Accidents and the News Media***. Although it deals with general aviation reporting, the guidelines contained in this pamphlet are valuable tools for the reporter and Army Aviation.

The Association was the first to recognize the potential for inaccurate reporting because of journalists' misunderstanding of aviation technology. The association developed 10 rules to avoid the pitfalls of reporting.

Observations

It is impossible to examine this group of newspaper articles for adherence to all of the 10 guidelines, but some observations can be made.

The possibility, as mentioned before, of inaccuracies and wrong conclusions creeping into a story are increased when a journalist receives information fron a source who is not an expert on the subject.

The Army may not make a qualified aviator or safety officer available for specific questions about an aircraft mishap. If the reporter has time, he must find an outside "expert" source. The type of situation can lead to greater inaccuracies. The journalism should avail himself to those who are the experts in the field, Army aviators.

Six articles were found on fleet groundings of the AH-64 and UH-60. Of these, only named sources outside of the city and both were associated with the contractor. These civilian experts served to validate and expand on the information the Army released through routine channels.

Oversimplification of technology was evident when examining articles written on NVG. Out of the 40 articles, 14 mentioned NVG by name as either present in the mishap or as the subject of the article. One of the articles differed from another on the same crash in that it made no reference to the presence of NVG on the aircraft.

Eight of the articles were about aircraft mishaps that ended with fatalities. NVG were present on all of

these aircraft as was mentioned in the articles. I found no evidence that the press was placing blame for the accidents on NVG use, but seven mentioned that NVG use was controversial. These statements on the controversy regarding NVG use normally appeared in the middle of the article.

Five of the articles dealt with the subject of NVG as the subject of the story. Four of them were a thoughtful and accurate attempt to explain their use and the basic technology. These four articles noted Army aircraft mishaps where NVG were present and drew conclusions as to their being a contributing factor in the accidents.

The fifth article was a human interest type story, short on the technological explanations and strong on the personality profiles of the aviators who flew with NVG. It was also a localized story about a Virginia National Guard unit, so the story had both proximity and prominence.

Again attribution statements by sources seemed to be where the greatest problem existed. Attributions such as "an Army spokesman" and "the Army" are not sufficient for the audience to determine the qualification of the source. Qualified identification of the source by name and background lends credibility to the story.

Of the 40 articles, 35 included statements from an Army spokesman of some type. These sources were identified as an Army spokesman, Army official base spokesman, officials, and simple "the Army."

In these 35 articles, 26 spokespersons were identified by name. But none of these 26 were identified as having any technical expertise in Army Aviation. Most disturbing was the fact that, of the remaining nine articles that cited quotes from anonomous sources, five were about NVG use, two were on AH-64 fleet groundings, and two were about fatal night mishaps with no mention of NVG.

Half of the stories examined contained a perspective. The journalists who prepared these 20 stories included historial perspectives such as the controversy surrounding NVG use and histories of similar fleet groundings. Specific attention was given to historical context when the facts alone rendered the stories complete. The technical and historical information brought the reader up to date on what happened and allowed the reader to draw his or her own conclusion.

Perspective can be a dangerous characteristic in reporting Army aircraft mishaps and Army Aviation technology. Again, the tendency to oversimplify a complex chain of events can lead to a misunderstanding of the mission of Army Aviation and the drawing of inaccurate conclusions. All articles must contain facts; i.e., an article must contain the statement of fact that NVGs were not the sole cause of an Army Aviation mishap.

None of the articles on aircraft mishaps included interviews with crewmembers or survivors. This supports the earlier observation that postaccident briefings either are not made available to the media, are ignored as a viable followup, or not considered newsworthy. This is a radical departure from the norm in civilian aviation accident reporting. Perhaps greater emphasis should be placed on the postmishap investigation information available. This should put Army aircraft mishaps in better perspective and enable the journalist to report them with more accuracy and objectivity.

Finally, what can the journalist do to prepare for the nonroutine type of reporting Army Aviation presents? How can the journalist prevent misunderstanding and confusion resulting from the highly technical sujects such as aircraft mishaps and NVG use? The answer is simply to adhere to the 10 steps suggested by ***Air Accidents and News Media***, normalize the reporting procedure, and use routine newsgathering and processing techniques.

Improvisation and creativity are important in gathering all of the accurate information needed to develop a thoughtful and objective treatment of an Army aircraft mishap. Focus on existing elements of news coverage—as opposed to creating new criteria for technological coverage.

Typifying, or anticipating, this type of story can help to prevent shoddy, inaccurate reporting because of a journalist's publication deadline. Army Aviation can make an invaluable contribution to this process by maintaining close liaison with installation and command public affairs offices. When a mishap occurs, the local command can make expert sources available to the press.

Journalists can further avoid unnecessary haste if they do their homework in advance. Army aircraft mishaps will, unfortunately, always occur. Army Aviation will continue to use NVG. Journalists should avail themselves of the resources available in advance and gain as much knowledge on these subjects as possible. Army Aviation could develop a familiarization program in mission and technology. Greater access before an event would improve communication during the event.

Army Aviation should take the lead in redefining its relationship with the press and assist in developing guidelines for the media to use in reporting on military aviation subjects. Greater understanding of Army Aviation technology by the press can result in more accurate reporting.

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Army Aviation In Level III Rear Operations

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On 26 February, 1991, the allied ground war in Iraq, 2d Armored Cavalry Regiment (ACR), screened forward of the VII U.S. Corps and made contact with the Tawakalna Division of the Iraqi Republican Guard. Historians named the ensuing battle the Battle of the 73 Easting (see figure).

Though some 175 kilometers (km) inside Iraq, 20 km to the west, the regimental support squadron (RSS) moved forward to support the approaching battle. Without warning, 10 Iraqi armored personnel carriers (APCs) appeared from the south and began firing on RSS maintenance vehicles.

Unable to outrun APCs, the RSS commander delayed them with main gun fire from his float M1 Abram tanks. He at once called for and received aviation support from the regimental commander.

The regimental commander committed an attack helicopter company (ATKHC) equipped with AH-1F Cobras. The ATKHC commander coordinated with the ground commander who marked the closest vehicles with colored smoke.

The ATKHC set up a blocking position between the RSS and the attacking enemy, which allowed RSS to disengage and continue movement to the east. The short battle resulted in all 10 vehicles being destroyed and numerous Iraqi killed in action.

The rear operation conducted by the 2d ACR was unexpected but successful. It showed that even the most successful operations, such as Desert Storm, can result in bypassed or withdrawn units conducting Level III attacks into our rear area.

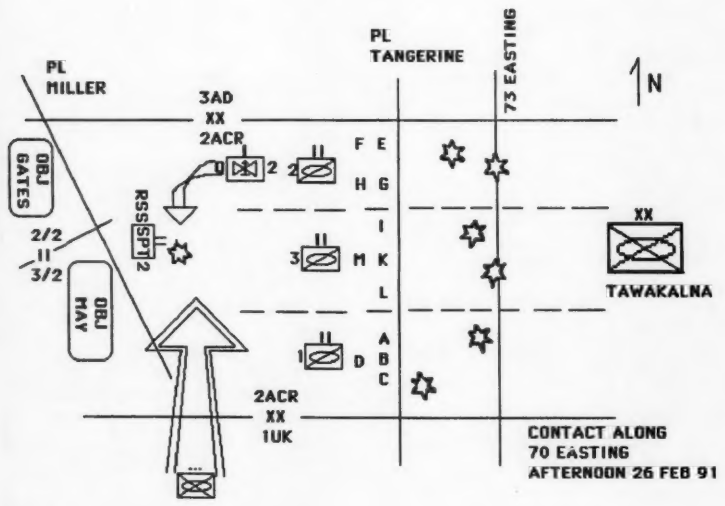
Another lesson learned was that advancing combat service support (CSS) units are extremely vulnerable to any level threat operating in our rear area. Aviation units must be prepared to assume priority roles in defending against threats to our rear area.

FM 100-5, ***Operations***, describes Airland Battle Operations as conducting operations in three arenas: deep, close, and rear. Of the three, aviation commanders often overlook the possibility of major threat forces in their rear.

By planning, coordinating, and training for rear operation missions, aviation commanders ensure that forward units retain the freedom of maneuver and continuity of operations even during a Level III attack in the rear area.

To successfully counter such a threat, commanders must initially plan for allocating assets to support rear operations. Second, aviation commanders must coordinate their efforts with ground forces. Finally, they must train to fight against a major enemy effort in the rear area.

FM 100-5 names four activities encompassing rear operations: as-



The Battle of 73 Easting

sembly and movement of reserves, redeployment of fire support, maintenance and protection of the sustainment effort, and maintenance and protection of command and control (C^2) assets.

The protection of sustainment efforts and C^2 assets against Level I and II threats generally falls to the "base cluster" concept described in FM 1-111, ***Aviation Brigade Operations***. Level I is agent activity and terrorism. Level II is raids and ambushes. Each base cluster defense is linked to the rear command post and the rear commander at each level of operation. As history has shown and our doctrine reiterates, few rear area units can sustain a defense against a Level III threat (airborne, heliborne, or deliberate ground attacks). More so than in the defense, advancing CSS units are especially vulnerable to such a threat. FM 1-111 describes one of aviation's roles in rear operations with a simple statement: "Aviation brigades or subordinate elements are employed mainly as a tactical combat force (TCF) to counter Level III incursions."

This statement gives aviation commanders a tough mission for which to train their units. Aviation commanders may find themselves as the appointed TCF commander and must be able to execute this mission. In protecting the sustainment and C^2, aviation units may be the only assets that can react in a timely manner and with sufficient firepower to defeat Level III threats. Aviation units are also capable of delaying or destroying enemy forces en route or after they have arrived. With the type of mobility and firepower found in aviation brigades, aviation units can respond with unparalleled quickness and return to the forward battle to conduct subsequent close and deep operations. No other Army asset has that capability.

The first critical task for aviation commanders in rear operations is to establish a plan for defeating rear area incursions. Level III threats present the most dangerous threat to support assets. Aviation units must designate internal assets or request additional support to react to significant rear area incursions. If possible, as FM 1-111 highlights, the S-3 (operations and training officer) assigns the mission in writing in the operations order. Though the FM explains that the S-3 is to put the tasking in the rear operations annex, the mission should also be highlighted as a "be prepared" mission. Commanders who do not plan or designate units will jeopardize critical assets in the rear area. They run the risk of not having adequate assets available to respond to major enemy operations in the rear area.

Though similar in execution to the close battle, the rear battle requires as much, if not more, close coordination with units that are in contact with enemy forces. Attacks on enemy forces in the rear area require strict C^2 measures to prevent fratricide. When CSS units are in contact with enemy forces, the battle lines often become nonlinear. This results in intermixing of friendly and enemy vehicles and personnel. To alleviate some confusion, FM 1-111 recommends that the aviation unit become the tactical C^2 element for the rear battle. From this vantage point, the aviation units may also run into problems of defining the target area.

An aviation commander arriving on the scene can use a variety of control measures to prevent fraticide. His most critical control measure is to make contact with that ground commander and allow the ground commander to guide the aircraft onto the target. Commanders can then use ground-colored smoke, panel markers, or terrain features to identify their elements in close contact.

Without a well-defined target area, aviation units risk shooting friendly vehicles and personnel in the rear area. Training for rear operations includes crew-level tasks as well as battle drills and command post exercises (CPXs). Aviators must be able to quickly identify major U.S. and threat equipment. They must call for and adjust indirect fires and employ organic aerial weapons systems to defeat threat forces. Many other individual tasks parallel tasks for conducting close and deep operations.

Aviation units must train routinely with CSS units and opposing forces (OPFOR) in realistic and challenging rear operation exercises. CSS units need to depict a variety of situations from moving to stationary. OPFOR units can attack into rear areas using airborne, heliborne, and mechanized attacks. This will present both the aviation and CSS commanders with challenging scenarios.

Training at the CPX level is important in evaluating and improving the planning process for rear operations. A well-organized CPX will determine whether commanders at all levels have adequately planned for varying levels of threat in the rear area.

Aviation commanders must accomplish three tasks to ensure success for rear operations against Level III threats: plan for the mission, coordinate the operation, and train for the mission. Each of the tasks are essential in successfully defeating enemy forces in the rear area. The Airland Battle cannot be won solely by fighting the rear battle, but it could well be lost in the rear. As in Desert Storm, Army Aviation will continue to play a vital role in rear operations. ❐

Training For The Night JAAT

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Countless warfighter exercises at division and corps level use deep night joint operations to destroy lucrative targets.

Most often, these operations are highly successful. This comes as little surprise, since for years U.S. doctrine has called for extensive use of night operations to take advantage of superior technology and training.

However, these exercises are computer simulations. The personnel trained are brigade staff and higher. The training objective for these commanders and their staff is to effectively synchronize these assets into the battle: fire support, Army Aviation, and tactical fighter aircraft. However, no tactical synchronization occurs.

The major challenge to the attack helicopter company commander, usually the computer cell commander, is to figure out how to input the mission into the computer to achieve the brigade-division commander's intent.

However, it is the tactical synchronization of the night joint air attack team (JAAT) that receives so little attention. The 1st Attack Helicopter Battalion (ATKHB), 24th Aviation Brigade (1-24th), Hunter Army Air Field, Savannah, GA, envisioned and developed a training program with emphasis on night joint operations.

The training was based on the ever-popular crawl, walk, and run scenario. The training involved USAF F-16 Falcons and A-10 Thunderbolts (Warthogs); Navy F/A-18C Hornets; and Marine AV-8B Harriers, F/A-18D Hornets, and A-6 Intruders.

In the past 6 months, countless day-and-night JAATs were conducted. As expected, there were significant differences in the conduct of day-and-night JAATs. The training proved extremely beneficial and continues today as each service refines the way to conduct night joint operations at the tactical level.

Based upon the difficulty of conducting night operations and the complexity of joint operations, regular training for these types of missions is not only a requirement for battle staffs, but also a requirement for the scout, attack, and tactical fighter crews who actually conduct the night JAAT.

The focus of 1-24th training started with day JAAT operations and learning night capabilities of the other services. Training continued all the way through to the night live-fire JAAT operations.

The following is a synopsis of the training that started in late February 1992 and some of the lessons learned. The crawl stage of the training required multiple face-to-face meetings with the fighter crews involved.

For years, the 24th Mechanized (Mech) has conducted day JAAT operations with A-10s. The aircraft that would perform night JAAT operations travel significantly faster than A-10s and use different attack profiles and targeting systems.

Many of the naval and marine aviators did not know the term JAAT. However, the concept of the JAAT's massed firepower was not new to them. None of the involved squadrons, USAF included, had ever conducted night JAAT operations, nor had the 1-24th.

Finding out the capabilities of the different fighter-attack aircraft was truly an educational experience. Before we could start training, we needed to know what each aircraft could and could not do. All of the aviators from the other services were equally interested in the AH-64 Apache's capabilities.

Every pilot we talked with was enthusiastic about describing his aircraft and its capabilities. They were equally interested in learning about the AH-64 and conducting the training.

The F-16s flew with LANTIRN (Low Altitude, Night Time, Infrared Navigation) pods that projected a forward looking infrared (FLIR) image onto the pilot's heads-up display.

The F/A-18s from the Navy could carry either a navigational FLIR or laser spot tracker (LST) as well as a targeting FLIR. In addition, the Naval aviators wore night

AH-64 Apache

vision goggles (NVG) unlike rotary-wing NVG.

The Marine A-6 had a FLIR with LST and self-designation capabilities. The AV-8Bs we trained with had only LST capability. Squadrons with new Harriers were also equipped with FLIRs and flew NVG. Also, the F-16s did not have LSTs, although other F-16 squadrons were already flying with them.

The natural follow-on to equipment descriptions was how the equipment was employed. To all the squadrons we visited, we explained our day-and-night tactics and scenarios where we thought TAC AIR would be used.

Aviators from the different types of aircraft carefully explained how they used the different night-targeting system. A11 of these aircraft, except the A-6s, were single-seat aircraft.

The Navy squadrons were successful in scheduling F/A-18 simulator time for some of the attack pilots from the 1-24th. The USAF is presently working on flying some of the aviators from the 1-24th in F-16s during night missions conducted with the battalion. Both are excellent in providing a greater joint understanding of the workload of a single-seat fighter during night operations.

Before any of the night training took place, a previously scheduled JAAT live-fire exercise was conducted to include tube artillery and A-10s. A chance encounter with Marine F/A-l8Ds at Hunter Army Airfield led to creating a triservice JAAT.

This simultaneously involved the USAF A-10s and the Marine F/A-18Ds in the live fire JAAT exercise. The attack profile of the F/A-18Ds was significantly different than that of the A-10s.

In the weeks to follow, company-level training was conducted with Navy F/A-18s from Strike Fighter Squadron 132 based out of Cecil Naval Air Station, FL. The F/A-18s participated in multiple-day operations at Fort Stewart, GA, delivering MK-76 training bombs on laser spots provided by AH-64s.

Both training events were critical in Air Battle Captain, now called Air Mission Commander (AMC), training and explaining Navy F/A-l8C attack profiles and bombing accuracy to scout and attack aviators. Night company-level battle drills were conducted at Fort Stewart with Strike Fighter Squadron 15 (VFA-15).

Again, MK-76 bombs were delivered with incredible timing and accuracy onto targets designated by AH-64s, However, this time the bombs were delivered under the cover of darkness.

In late April, a live fire night deep attack was conducted. A11 three attack companies crossed the forward line of own troops (FLOT) as tube artillery suppressed enemy air defense (SEAD) by firing targets at the passage point.

As the three companies flew across the Fort Stewart artillery impact area (the simulated FLOT), tube artillery was simultaneously firing targets as close as one kilometer from the attack helicopters.

Because of range and space limitations, only one company at a time could occupy the battle position. Multiple-launch rocket system (MLRS) SEAD was fired to cover the ingress-egress of each company. Also, the F/A-l8Cs were handed to the company in the battle position for final control.

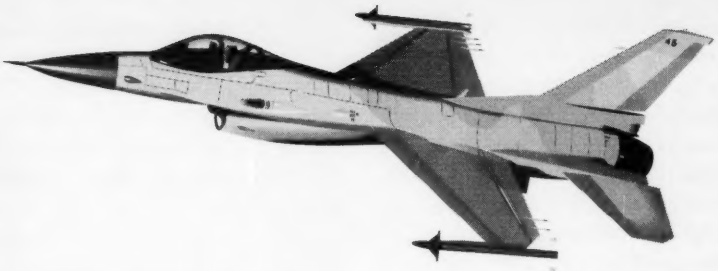
The mission was an unqualified success. The timing of the artillery was flawless; the three attack companies precisely executed the mission; and the fighters were able to make two passes for each company for a total of 24 attacks by fighter aircraft. All of this was done on a night with 0 percent illumination.

Only weeks later, another night company-level battle drill involved the use of USAF F-16s from the 69th Tactical Fighter Squadron. These aircraft also delivered their ordnance time accurately on target. However, without laser designated targets for the F-16s, final control onto specific targets proved difficult.

In early June, company-level training was also conducted with Navy Strike Fighter Squadron 105. Day JAAT operations were conducted into the Fort Stewart impact area.

Ninety minutes later, after the scout, attack, and the fighter aircraft were refueled, night JAAT operations were conducted at Townsend Range, a USAF National Guard bombing range about 20 miles south of Fort Stewart.

Two weeks later, an attack company deployed to the Marine Corps Air Station, Cherry Point, NC, to conduct live-fire HELLFIRE mis-



F-16 Falcon

sile firing. In addition, joint live-fire training was conducted with Marine Attack Squadrons 542, 331 (AV-8Bs), and 332 (A-6s).

Day operations were conducted with only AV-8Bs from Attack Squadron 542. The night attack included three AV-8Bs from attack Squadron 331 and one A-6 from Attack Squadron 332. At 2150 hours local, attack company departed the Marine Corps Air Station for a northern engagement area know as BT-9.

After arrival into battle positions and successful destruction of the enemy (barges floating in the water) from live HELLFIRE engagements, that company moved to engage targets in the southern engagement area known as BT-11 (Piney Island).

The company conducted team operations in the BT-11 area. The light team arrived to its battle position first and began pouring suppressive fires into the engagement area and passing nine-line strike briefs to fighter aircraft.

The light team remained on station a few minutes longer to cover the egress of the heavy team with more suppressive fires and designated targets for the fighter aircraft. Again, the mission was an unqualified success.

The engagement in BT-9 had seen two successful night HELLFIRE engagements at ranges of 5,500 and 6,000 meters.

The engagements in the south involved the company conducting a sectored night JAAT with 2.75-inch rockets and 30-millimeter cannons. The engagements successfully coordinated multiple attacks of two different kinds of close air support (CAS) aircraft while the heavy team in the north destroyed the armored force.

Lessons Learned

Crawling. The training for these night joint operations was based on the crawl, walk, and run scenario. Before conducting joint night operations, the attack company commander must ensure the unit is extremely proficient in night operations.

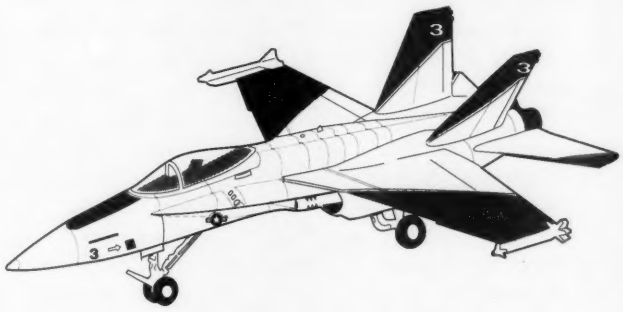
If night attack helicopter operations are considered running the 100-meter dash, then night JAAT operations should translate to the 110-meter high hurdles.

Knowing fighter aircraft capabilities that perform the CAS-JAAT mission is essential. An Army aviator's view of the target area at a hover is significantly different than a fighter pilot's view as he approaches the target around 500 knots.

Most CAS aircraft are single pilot. The workload for these aviators is going to be demanding for night operations. F/A-18 simulator time provided a tremendous opportunity to see the CAS aviator's perspective. Likewise, allowing CAS aviators the opportunity to see the FLIR/target aquisition designation system provides them with an Army aviator's perspective.

Walking. Conducting day rehearsals for night joint operations validated the technology of the LST. Although much faster than the A-10, the Navy and Marine fighters were deadly accurate when using the LST provided by the AH-64s. Fighters ingressed at altitudes as low as 500 feet and as high as 10,000 for day training.

Night LST training went equally well. Fighters again ingressed at altitudes as low as 500 feet and as high as 500 feet. The nine-line strike brief is the same for day as it is for night operations. Great strides were made in terms of AMC training.



F-18 Hornet

As expected during night operations, visual acquisition of the ingressing fighters is practically impossible. However, an accurate nine-line brief will get the fighters looking in the right direction to facilitate laser spot acquisition.

An interesting note: The Navy and Marine aviators request "sparkle on," and the USAF pilots request "laser on."

Running. The two-live fire exercises proved to be of tremendous training value. Bringing together the JAAT for night live-fire exercises is the only way to validate the tactics and doctrine we so often profess to use.

The command and control (C^2) of a night JAAT proved to be demanding. Based upon mission, enemy, troops, terrain, and time considerations, C^2 was conducted differently than day JAAT operations. Attack company operations rely heavily upon unit standing operating procedures for successful accomplishment of the night JAAT. Fire distribution is a major consideration.

The live fire exercises validated the doctrine of JAAT; they successfully proved that attack helicopters and CAS aircraft can perform at night. Unlike day JAAT operations, the commander must fight the night battle from an aircraft with advanced night optics. Since OH-58Ds are not assigned to attack battalions, the commander must fight from an AH-64 Apache.

Also, control of CAS aircraft will depend on which team in the company can most effectively use the sorties. For the Cherry Point live-fire exercise, the light team led by the attack platoon leader, had final control of both the AV-8Bs and the A-6s for operations on the southern portion of the island. The company commander had control of the heavy team in the northern portion of the island.

The first night live-fire exercise conducted at Fort Stewart involved four F/A-18Cs rolling in every 20 seconds. This is a long time for an attack helicopter to be lasing for CAS as opposed to destroying targets with his organic weapons.

Controlling a night JAAT requires a great deal of situational awareness. As previous stated, the attack company must be highly proficient in night operations before joint night operations can be undertaken. Maximum use of the attack systems available will ensure the greatest destruction possible of the enemy.

If more artillery is needed, then the AMC should request it. Greatest use of the fighters would involve destruction of targets that cannot be viewed or effectively engaged by the attack helicopters. Again, the use of OH-58Ds would facilitate CAS engagement.

Depending upon the fighters altitude or sector, the AMC may have to deconflict fires. In several operations, the CAS aircraft never dropped below 4,000 feet and no shifting of fires was required.

In other scenarios, the fighters would be as low as 500 to 800 feet in the attack helicopters' sector of fire. This demands a great deal of situational awareness and fire discipline on the part of every crew.

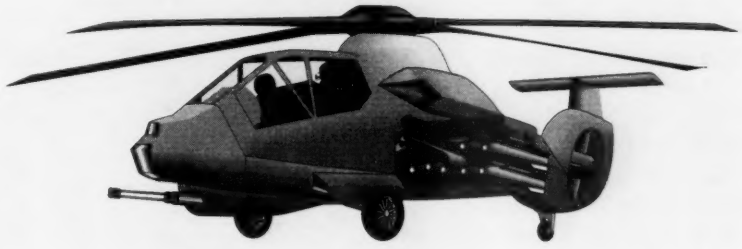
Training for the night JAAT is a constant process. Many of the tasks involved can and must be conducted at the individual, crew, and team level before training at the company level.

As previously stated, none of the aviators from any of the services involved in this training had conducted night JAAT operations before this training program started.

These lessons learned are by no means all inclusive. They are simply some of the major considerations deduced from the training conducted within the 1-24th.

As more modern technology is fielded, such as the Longbow Apache, RAH-66 Comanche, and the OH-58D Kiowa Warrior, a new dimension will be added to night JAAT operations. Also, with the U.S. military's increased focus on contingency operations, units must take advantage of joint training opportunities so all the services will better understand the night JAAT.

Finally, we must take maximum advantage of our night capabilities and train as we are going to fight. Strike to Kill and Strike at Night!❐



RAH-66 Comanche

Aviation CSS At The NTC

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National Training Center
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Introduction

Any aviation unit that has trained at the National Training Center (NTC) within the last year will have noticed an increase in training feedback about aviation combat service support (CSS) and its support of the operational mission. The Operations Group, Aviation Trainer Division (Eagle Team), has an increased personnel authorization. The team is now structured to provide the rotational aviation unit with the observations and feedback necessary for the unit to leave the NTC better trained than when it arrived.

CSS Planning

CSS planners within an attack battalion must properly tailor support for a particular mission. To do so, they must have a clear understanding of the mission, the commander's intent, and the scheme of maneuver. Every mission is different; therefore, the CSS support of that mission is different. The sooner the following are integrated into the planning cycle, the better: the executive officer (XO), personnel (S1), logistics (S4), the 3/5th Platoon leader, the maintenance company commander, etc. Integrating the efforts of intelligence (S2), operations and plans (S3), and the fire support officer in the planning effort without the supporters often results in in-

complete CSS planning and execution. This lack of support usually results in not accomplishing the mission nor the commander's intent.

Once the battalion commander gives initial planning guidance, the XO can provide further guidance to the supporters as a CSS scheme of support. Such guidance may consist of maintenance priorities and aircraft requirements for the maintenance company commander, ammunition and fuel requirements and general locations to the 3/5th Platoon, and aircrew/aircraft recovery guidance. Notice that the scheme of support covers time-critical events and actions to provide the commander with the maximum combat power when he needs it.

Operators plan and integrate their efforts into products such as the decision support template to help in the execution of the mission. As they do, the CSS planners must integrate their decision points and criteria into the same product. These actions should ensure better alignment of effort.

REHEARSALS

The importance of rehearsals before mission execution cannot be overemphasized. CSS key players must be included in the battalion rehearsal process. Their participation and input during the rehearsal (backbrief, sand table, rock drill) will identify and clarify problems that can be solved before mission execution. The CSS executors (3/5th Platoon, recovery teams, medical personnel, etc.) should conduct their rehearsals.

AVUM/AVIM

The aviation unit maintenance (AVUM) and aviation intermediate maintenance (AVIM) must extensively coordinate before deployment to the NTC. They must discuss division of labor, prescribed load list or authorized stockage list requirements, special tools, recovery operations, etc. They must develop a working relationship and expectations before arriving at the NTC and not try to develop them on arrival. Maintenance preparedness for the deployment cannot be left to the maintainers, but requires command involvement.

Coordination between the AVUM/AVIM and the line companies must be a timely, smooth process. It should be driven by standing operating procedure (SOP) and habit. The results are as follows: timely maintenance, efficient parts requisitioning, correct reporting to the commander, and maximization of combat power.

The rotational unit should coordinate with Red River Army Depot, Texarkana, TX, and submit a demand summary of anticipated parts requirements. The representative at NTC will bring some line items authorized by the U.S. Army Aviation and Troop Command (the former U.S. Army Aviation Systems Command) and preposition items at Red River to decrease the turn-around time for a requisitioned part. This coordination should take place before the rotation and be continuous up to deployment. The better the coordination, the better the service.

Even with all the preparation and coordination, the rotational unit undoubtedly will not have everything onhand or available through Red River. The unit must plan for and coordinate the mechanism for shipment of parts from its home station. This shipment may be through Federal Express, the U.S. Postal Service, or another means. If the mechanism for shipment is not wired before deployment, it will be difficult to make the system work quickly.

III/V OPERATIONS

The 3/5th Platoon is responsible for two of the three critical classes of supply for aviation, fuel, and ammunition. Why is Murphy always waiting around the 3/5 Platoon? The usual cause is lack of planning either by the staff or a lack of time for the platoon leader to perform his troop-leading procedures.

Positioning and composing of forward arming and refueling points (FARPs) are time-critical events and must be planned early in the planning process. Positioning requires coordination with the S2 and S3 so that the FARP is not within medium artillery range. Positioning also requires coordinating the FARP's position with the higher headquarters. Positioning supports the operational scheme of maneuver. Composition of the FARP is equally important in terms of manning and quantities of fuel and ammunition. All this takes ***time***!

Communication is critical to the battalion as a whole, but also to the FARP. We generally observe a lack of communications planning in relation to the FARP. Without reliable communications, the XO and S4 cannot know the status of the FARPs. They cannot displace the FARPs according to the decision support template or advise the commander properly.

Positioning of the key leaders within the 3/5th Platoon is important. If the battalion must make a turn in the FARP for a subsequent attack of a moving enemy force, key leaders should position themselves to ensure smooth, quick execution of FARP operations. They must be at the critical place at the critical time!

Arriving at the FARP, needing a quick turn, and discovering that it has not been safety-checked by the safety officer or another pilot are disheartening at best. Include this requirement in your planning.

Moving FARPs around the battlefield should be based on events not necessarily time. The opposing forces (OPFOR) do not always cooperate with your plan to kill them.

One thing that must occur for successful 3/5th Platoon operations is to make a leader responsible for his actions, i.e., delineate who "Commander in Chief (CINC)-FARP" is. He may be the Headquarters and Headquarters Company commander, the S4, the XO, etc. Whoever he is, he must know and be held responsible. By doing this, the 3/5th Platoon will receive the same attention and leadership given to other elements of the unit.

RECOVERY OPERATIONS

Recovery of aircrews should be included in everyone's SOP. It should be more than merely "go to the nearest downed pilot pickup point and you will be picked up at a certain time." If an aircraft is shot down, injuries probably involved, and the crewmembers may not be able to execute this generalized procedure. The unit must plan to recover those crews as quickly as the situation allows. The commander's decision to proceed with recovery assets forward should not be made blindly. His decision should be based on the enemy and friendly situations. There may be times when this cannot be done.

MEDICAL OPERATIONS

As we all know, every aviation unit has an austere medical capability that barely can keep up with routine operations. Positioning the flight surgeon/physicians' assistant and medics at the critical place and time during a mission is a difficult decision, but it must be done.

A technique to broaden your medical coverage is to integrate your internal plan into the overall brigade/division medical plan. You should provide locations of current and proposed forward support battalion and main support battalion medical companies. The procedures for using these sites should be included in your SOP. You also should provide locations of ground task force aid stations and ambulance exchange points to the aircrews. It is important for the medical personnel to rehearse aircrew extractions and routes to the most probable medical company, both during the day and at night.

In a chemical environment, your unit may sustain chemical casualties. What is your plan for handling this type of casualty? The plan should be discussed within the unit, and the higher headquarters' medical authority, and it should be rehearsed.

CSS COMMAND AND CONTROL

Who monitors the CSS functions for routine operations, during the preparation for the mission, the execution of the mission, and recovery from the mission? Every commander must decide who he wants to do this for him. We find that if the commander tries to do it himself, he quickly becomes overloaded. The XO or S4 might be the logical choice. The XO seems to work the best since he focuses on the actual mission and all the efforts to make it happen.

How do you want your XO to operate? Is he the fighting XO, the unit chief of staff, the CINC-Logistics, the tactical operations center (TOC) officer, or what? His function depends on the commander's desires and the personalities and abilities of the staff. This is a tough question every commander must answer.

The Aviation Logistics Operations Center (ALOC) is the focal point for monitoring logistics operations. It also serves as an alternate command post after the TOC and tactical air coordinator. The ALOC should have communications and be organized in such a way as to monitor the tactical operations of the unit. The ALOC should be able to take over the command and control of the unit for short periods. We see officers in the S1/S4 as being too involved in routine matters to be tactically oriented during combat operations. Noncommissioned officers (NCOs) make operations happen routinely. They free the officers to plan for future operations or execute contingencies based on the tactical situation. If you allow the NCOs to do their job and hold them responsible, your ALOC operations will be much more efficient.

CONCLUSION

The subjects I have discussed are not inclusive. They are the basics. However, doing the basics right is key to success in continuous aviation combat operations. Success at the NTC is not based on the number of OPFOR vehicles that are killed. We, the Eagle Team, believe a unit will have a successful rotation if—

- The rotation is accomplished safely, and the unit returns to home station with every soldier healthy.
- The unit shows improvement throughout the rotation.
- The unit takes the lessons learned and applies them to its home station training. ❐

Helicopter Maintenance

Through The Years

Colonel William J. Blair
Assistant Commandant
U.S. Army Aviation Logistics School
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The people who pinned on helicopter aviator wings in the early 1950s have seen incredible advances in helicopter flight. Likewise, the people who started repairing helicopters back then have witnessed tremendous changes in maintenance concepts and requirements. Yes, aviators who trained in the 1960s have seen dramatic changes, as have those who experienced flight school in the 70s, 80s, and even today. The maintainers also have been challenged by the advance of technology.

World War II—The Grasshoppers

Going back even further to the unforgettable crews of the "Grasshoppers" of World War II (WWII), who bounced around in the Army's "L-4" fixed-wing aircraft as observers and artillery spotters. They set the stage for the phenomenal development of Army Aviation, which today plays a dominant role in the Army's warfighting force. The Grasshoppers proved the value of a machine that could traverse terrain with ease, whose pilots could tell our artillerymen the enemy's location and how to adjust fire to hit their target. They also revealed the obvious—the value of that flying machine was only as great as its ability to leave the ground.

Those pilots did many of their aircraft repairs. They worked hand-in-hand with the mechanics (then trained at Fort Sill, OK) when those guys were around. When caught in a solo situation, pilots could make repairs using the small roll of common tools stashed in every airplane.

Of course, airplanes were simple then. Reciprocating engines like those found in cars, few instruments, and straight mechanical flight control linkages and cables required frequent, but noncomplex, maintenance and servicing. These repairs were within the capabilities of anyone with a reasonable mechanical aptitude. Then came the helicopter.

During WWII, the Army's interest in helicopters was minimal. However, by 1945 private industry's helicopter pioneers, led by Igor Sikorsky, had proven rotary-wing aircraft were for real. Military tacticians quickly realized the battlefield value of an aircraft that could rise straight up, fly at high speeds, and descend vertically. In1945, the Army wanted it.

The Korean Conflict

The Korean conflict triggered a quantum surge in those efforts. Helicopters, notably Bell's H-13 Sioux, flew thousands of soldiers to medical stations—soldiers who would surely have perished without such transport. Besides the constant life or death missions made by these "Angels of Mercy," Sikorsky's H-19 Chickasaw did vital logistics and troop transport missions. The helicopter was now a fixture on the battlefield.

A major consideration, however, accompanied the development and procurement of large numbers of helicopters—maintenance. New powertrains and rotor systems and inherent vibrations dictated close attention to component tolerances and wear factors. These requirements increased the need for recurring, scheduled inspections and repair.

In Korea, operating units essentially did maintenance on an as-needed basis, with considerable help from pilots.

For more difficult repair, helicopters were sent to ordnance light aircraft maintenance companies. Besides seat-of-the-pants flying, we had much seat-of-the-pants maintenance. We got by, but

it soon became obvious the Army needed an organized maintenance training program and support structure.

The 1950s—Gary Air Force Base

In the early 1950s, the Air Force established a training program for Army helicopter maintenance at Gary Air Force Base (AFB), San Marcos, TX. Maintenance military occupational specialties (MOSs) now consisted of single-rotor or tandem-rotor helicopter (MOS 672 series) and single or multiengine, fixed-wing aircraft (MOS 671 series).

The Air Force used a representative-aircraft training approach. A single-rotor helicopter mechanic, for example, spent 16 weeks learning to maintain the H-13 helicopter, inside and out, top to bottom. Students were placed in three- or four-man teams. Each team was assigned to a training helicopter (an old ground-runnable H-13B model). The team completely disassembled the engine and rotor system and removed most flight controls and powertrain system components. After receiving instruction on repair procedures for the removed subsystem components, each team reassembled "their" aircraft, made required installation adjustments, and rigged the aircraft flight control system. A team's efforts were tested when it was time to crank the helicopter and give it a live ground run. Training on aerodynamics, systems theory, standard maintenance procedures (safety, tool use, ground handling, etc.), publications, and forms and records accompanied the hands-on maintenance sessions.

The representative-aircraft approach gave mechanics a good insight into what makes any helicopter tick. Provided with the right maintenance manuals, a mechanic could "crew" almost any type helicopter in the field.

During this time, the Army used the Air Force technical order (TO) system to document maintenance procedures. The Army's TO system followed the Air Force maintenance publication system, both in level of detail and in format. The same held true for forms and records used to log maintenance actions and historical data.

The publications, forms, and records transitioned through a phase in the late 1950s when they still followed the Air Force's lead in format and content, but were renumbered to an Army technical manual (TM) identification system. Eventually, the Army came up with its own format, technical content, and standards for TMs; however, many similarities still exist.

Gary AFB became Camp Gary (Army) for a short while before closing. By 1960, the U.S. Army Transportation School, Fort Eustis, VA, had become the Army's guru for all aircraft maintenance training. The Transportation Corps replaced the Ordnance Corps as the proponent for Army helicopter maintenance. Now Army Aviation had to determine where, in the field, specific maintenance tasks could best be performed, and at what levels the repair parts should be stocked. Levels of maintenance became a prime consideration for

Crewchief works on H-13 in field exercise "Wolf Call," Germany 1955.

designing the Army's aviation structure.

The 1950s—Levels of Maintenance

Since then, the term "levels of maintenance" has plagued maintenance system analysts and decisionmakers. In the 1950s, the term "levels" was often used interchangeably with the word "echelons." Three levels (or categories) existed then—organizational, field, and depot. However, within those three levels, five "echelons" existed—first and second at the organizational level, third and fourth echelon comprised field maintenance, and fifth echelon was depot/overhaul.

In the early days, besides company-size aviation units, small "Air Sections" dotted the Army's structure. A small detachment of six or more aircraft might be authorized by a signal battalion or an artillery unit. These sections usually had a pilot and crewchief per assigned aircraft, several mechanic's helpers (or assistant crewchiefs), and several clerks for supply and administration work.

The Air Sections were close knit groups in which pilots and maintainers ate, slept, and worked together—particularly on field exercises. That situation lent itself to good cross-fertilization. Crewchiefs flew on many missions and gained "stick" time, and pilots helped with the maintenance, much of which was done at night.

For maintenance support, the Transportation Aircraft Maintenance Company (TAMC) often was located on an installation with several Air Sections clustered nearby. In essence, crewchiefs, whether assigned to an aviation company or an Air Section, did all organizational maintenance. They took the aircraft to the TAMC when field maintenance (third or fourth echelon) was required.

This was a time when a crewchief's name was synonymous with his aircraft's tail number. When someone talked about tail number 126, they were talking about Specialist Pickett, or if it were tail number 919, Specialist Fortaine's name came to mind.

A crewchief inspected his aircraft after every day's flying and prepared it for the next day. These daily inspections were called postflights. Pilots did more abbreviated "preflight" inspections at the beginning of each day's flying.

When a major inspection came due, the crewchief was in charge. Usually, mechanic's helpers and crewchiefs from other aircraft, when available, helped do the work, but the crewchief of that particular aircraft was the boss.

The key to developing crewchief responsibility was that most of the workday was spent working on their aircraft. The crews were authorized sufficient personnel to allow a crewchief per aircraft, and their work priority was to keep the aircraft airworthy.

The best-case situation existed in Germany, where the Army concentrated its major defense forces. There, paid local nationals usually did all the "detail" work, i.e., kitchen police, post cleanup, gate guard, etc. Thus, a crewchief's only detraction from MOS work was the training required to keep him current in basic combat skills. Crewchiefs and repairmen spent most of their time working on aircraft. This close crewchief-aircraft relationship encouraged tremendous "pride of ownership," which translated into high-quality maintenance and quick turnarounds on inspections.

As the years passed, the aviation maintenance structure underwent a variety of "level" combinations. We saw the transition to four levels (organizational, direct support (DS), general support (GS), depot); the integrated DS maintenance, where selected direct support maintenance capabilities became organic to "organizational" units; and streamlining to the current three "levels" (aviation unit maintenance [AVUM], aviation intermediate maintenance [AVIM], and depot). Within AVUM, crewchiefs do certain tasks, and AVUM companies do others. Within AVIM, corps support units do tasks not allocated to divisional support units. Now, for the next generation of aircraft, the Army anticipates two levels of maintenance—user and depot.

The Vietnam Conflict—Maintenance Support

Many factors influence the need for almost constant reassessment of how we organize our maintenance support force. Foremost are the never-ending advancements in technology. The UH-1 Huey really started it all. Suddenly, we could not teach an automobile mechanic in a few weeks to apply that skill to repairing an aircraft engine, because automobiles do not have turbine engines. The Huey, then the AH-1 Cobra, also brought a few strange, little black boxes to help fly and navigate. Now electricians had to learn about electronic signals and wiring bundles. Composition of parts stockage lists also changed significantly with the introduction of our first "jet" aircraft.

The Huey, of course, became the centerpiece of Vietnam. The Huey replaced the H-21 Shawnee as the war in that country escalated. These magnificent aircraft often

Maintenance flightline, An Khe, Vietnam, 1967

flew 8 to 10 hours a day, day after day, in grueling environments. Their record of reliability and durability testified not only to a new era of helicopter technology, but also to an Army that was learning to provide a rapidly burgeoning, overworked aviation fleet with effective maintenance support.

Vietnam provided a wealth of experience for aircraft maintainers at all levels. The 1st Cavalry (Cav) Division, as the first airmobile division to go into combat with its 400-plus helicopters, served as a visible test bed for aircraft maintenance support. The division's 15th Transportation Corps Battalion (DS/GS) moved into An Khe, a patch of ground carved from the jungle that became the world's largest helipad. They then proceeded to provide round-the-clock maintenance support for the division's assault and attack helicopter units. The 15th had four companies, each supporting specific operating units.

While at An Khe, repairmen lived in tents and worked primarily from Butler shelters set up along the flightline. Specially designed ground support equipment and airmobile shelters were made available to allow them to do most repair functions. The 15th quickly learned the need to provide contact maintenance teams to forward units. The division engaged the enemy throughout the central highlands. They could not afford to send aircraft back to the base camp for support level repairs, unless major damage was incurred. Maintenance teams, comprising six or seven repairmen of various specialties, were formed at the An Khe base camp. These teams usually traveled—with essential repair tools, equipment, and repair parts—by CH-47 Chinook to patch up helicopters in forward landing zones.

The teams usually stayed with operating units for the duration of major tactical actions. It was always an eye catcher to watch a team pack its tools and equipment into an airmobile shelter, close the shelter, attach wheels, roll it in the back of a cranked Chinook, and fly off to the next site. These "traveling circuses" were not unique to the 1st Cav, but typified aviation maintenance operations throughout Vietnam. Informally, they can be considered as the pioneers of today's battlefield damage and assessment repair team concept.

Vietnam also may have been the last hurrah for the time-honored crewchief pride-of-ownership syndrome. In that conflict, a crewchief was tied characteristically to a specific aircraft, by tail number, as was stated earlier. It was not unusual for a crewchief to fly combat missions all day, work on his aircraft until dark, and be up before dawn to get it ready for the next day's mission—every day. Sadly, events since then have diminished this close aircraft-crewchief relationship.

Post-Vietnam and Present

Today, because of manpower constraints, crewchiefs often are assigned at a less than one-per-aircraft ratio. Unit duties often keep crewchiefs from their aircraft, and major inspections are given systematically to an external organization—AVUM or AVIM. In the latter case, crewchiefs seldom accompany the aircraft because of personnel shortages in their units. Today crewchiefs often find themselves putting aircraft work last, which is not a good situation.

Until Vietnam, the Army essentially bought its aircraft "off the shelf." They did not go through the rigid source selection evaluation board (SSEB) process now mandated for weapon system acquisition. Using the "off the shelf"

process meant that aircraft procurement decisions were based on speed, rate of climb, maneuverability, and other operational capabilities. Reliability and maintainability took a back seat.

The Electronic Invasion—New Maintenance Thinking

However, the rising price of helicopter technology eventually made it necessary to take firm measures to lower life cycle operating and support costs. So, reliability and maintainability became prime grading factors in the post-Vietnam helicopter selection process. The UH-60 Black Hawk and AH-64 Apache underwent SSEB evaluations that emphasized logistics and maintenance support features on an even plane with operational features.

Besides improved maintainability, the new generation of aircraft embraces a technology that shifted from mechanical subsystems toward electronics and computerization. This shift influenced a major change in the Army's aircraft maintenance training programs and repair parts considerations. It also imposed limitations on "where" certain maintenance actions could be done.

We now see many subsystems that require recurrent calibration and testing, often with environmentally sensitive test, measurement, and diagnostic equipment. This equipment was not made to bounce around in helicopters and trucks or function in extreme climatic conditions. Thus, the concept of remove and replace forward and test and repair to the rear became increasingly dominant in maintenance planning.

The electronic invasion also triggered new maintenance "thinking." On the older aircraft fleet, crewchiefs and repairmen could spot potential system and component failures through wear factors found during scheduled inspections. For example, a push-pull tube in a flight control system was replaced if an inspection showed its end bearing had too much play. But many electronic components (including those found in flight control systems) fail all at once, with no prior indication, just as a light bulb suddenly burns out.

Environmental Conditions Effect on Aircraft

Also, trips to Panama and Southwest Asia in recent years revealed that environmental conditions affect the airworthiness of today's helicopters more than they did the older fleet. Humidity took its toll on electronic systems in Panama, as did the heat and fine sand in Saudi Arabia. Further, the high-tech nature of the new systems generated an increased need for civilian contractor support. Both of those situations are acceptable tradeoffs for jumps in technology and aircraft operational capabilities. However, they must be acknowledged as tradeoffs because they will dictate our future maintenance philosophy.

Impact of Changes in Force Structure and Warfighting Doctrine

Just as significant as leaps in technology, changes to the Army's force structure and warfighting doctrine have influenced the way we maintain aircraft. The greatest impact in the 80s came from the consolidation of all divisional aviation assets into single aviation battalions.

Included in that reshuffling was the formation of an AVUM platoon within the battalion. That platoon was tasked with performing major inspections (now called "phases"), and time-consuming, nonscheduled maintenance for aircraft assigned to operating units within the battalion. Crewchiefs remained with the operating units, their tasks now essentially committed to servicing, troubleshooting, and minor maintenance.

With no apparent increase in personnel strength, the aviation battalions were elevated to brigade status. Platoons became companies, companies became battalions, and the battalion headquarters became a brigade headquarters. This reorganization is, of course, our current structure.

An AVIM company, doctrinally assigned to the Division Support Command, supports the Aviation brigade within the division. Because of greater equipment authorizations, AVIM companies can do more indepth tasks than AVUM units. The AVIM also provides backup for AVUM work-overload situations.

AVIM companies also exist at the corps level. These companies support nondivisional aviation units and provide backup maintenance/work overload support for divisional AVIMs. The corps AVIMs are authorized equipment that allows somewhat more extensive maintenance than is found in the divisions. The pattern is that, as we move rearward in the theater of operations, the depth of maintenance capability increases, but mobility decreases. Skills of assigned repairmen are all the same, since they all go through the same MOS training program.

Maintenance MOSs and Training Programs

As changes transpired in aviation technology and force structure, maintenance MOSs and training programs were revised to

accommodate new requirements and eliminate the old. Repairman MOSs went from category type (single rotor or tandem rotor) to aircraft-specific (67N - UH-1, 67V - OH-58, etc.). Fixed-wing repair MOSs virtually have been eliminated because of the dramatic force shift to helicopters. (Contractors maintain the few remaining fixed-wing aircraft.) Technical inspector (TI) MOSs have cycled back and forth between "broad range" (one MOS for all rotary-wing, one for all fixed-wing) and "narrow range" (a TI MOS for each type aircraft). The 35-series avionic or electronic MOSs have been moved from Signal to the Aviation Career Management Field 67. The 68-series component repair MOSs have been restructured to accommodate changing technologies.

Training, the bulk of which is conducted at Fort Eustis, has undergone a variety of approaches (standard classroom or shop, self-paced, computer-assisted, etc.). During Vietnam, Fort Eustis initiated a training strategy by which students attended a short duration "apprentice" program. They received instruction on fundamental maintenance tenets. Based on performance, they were sent either directly to the field as 67A "helpers" or tracked into further aircraft-specific training and given an MOS at Fort Eustis before going to the field.

The schoolhouse underwent significant revamping. In 1983, when Aviation became a separate branch within the Army, aviation maintenance was removed from the Transportation School curriculum and assigned to the newly created U.S. Army Aviation Logistics School (USAALS), Fort Eustis.

When originally established, USAALS was aligned functionally as a combat service support school under the U.S. Army Logistics Center, Fort Lee, VA. In 1987, the decision was made to align the USAALS with the U.S. Army Aviation Center (USAAVNC), Fort Rucker, AL. Now it is a tenant activity at Fort Eustis, and assigned personnel wear the USAAVNC shoulder patch.

Two-Level Maintenance System

As previously noted, the future vision for Army aviation is a two-level maintenance system. The goal is to go to a "user" level that encompasses all battlefield maintenance of a return-to-user nature (aircraft is fixed and retained by or given back to the owning unit) and "depot" level (after repairs, aircraft or components are put in the supply system for reissue on an as-needed basis). Depot-level facilities will be located away from the theater of operations.

The ideal two-level concept would be one in which all user-level repairs are done at the aircraft owner level. However, a repair organization, by whatever name, will exist between the operator and the depot.

Stripes on the Flightline" Program

Another major goal is to set up a "stripes on the flightline" program. This program allows enlisted crewchiefs and repairmen to remain in technical positions and still have the opportunity for pay scale advancement.

Currently, our aviation "wrench benders" are in pay grades E-4 and E-5. To advance beyond that level, they must leave technical work and become supervisors/administrators. In essence, just when they reach peak proficiency as technicians, they stop doing technical work.

The effect of that situation in a high-tech environment is that we are experiencing high no evidence of failure (NEOF), high removal rates on high-cost components, high troubleshooting and repair times, and high constant retraining costs. Poor management often results—a good cook does not necessarily a good mess sergeant make. Morale suffers because many repairmen would rather work on aircraft than supervise. All that translates into lower than attainable operationally ready (OR) rates for our aircraft fleet.

The USAALS "stripes on the flightline" initiative aims at increasing the grade authorizations of aircraft maintainers so they can remain as technicians without sacrificing income. It also provides an opportunity for those who wish to take the supervisory track.

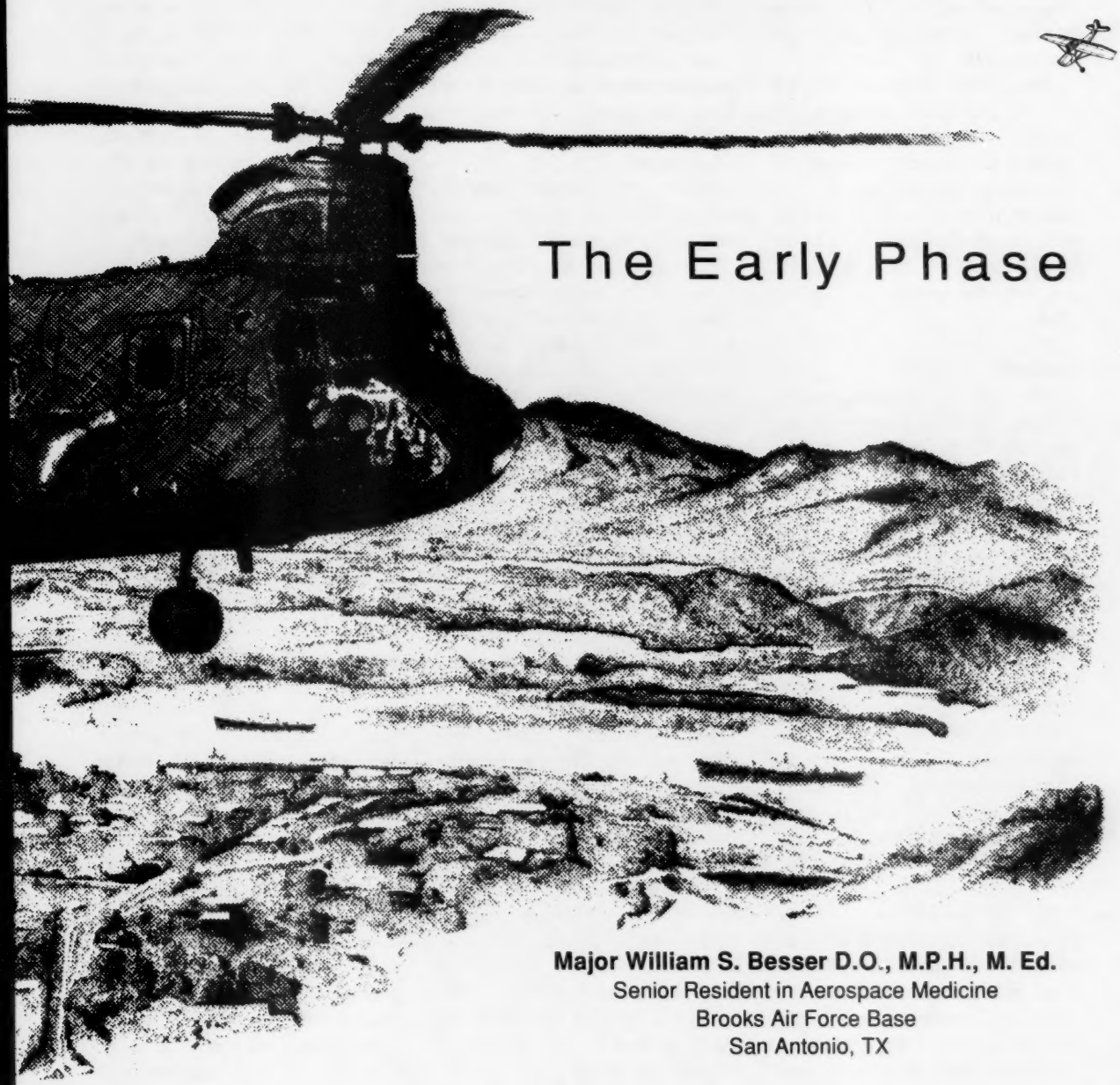
The dollar savings in reduced NEOF, training, maintenance man-hour consumption, and increased management efficiency—though hard to measure—will more than offset the cost of changing standards of grade to allow additional senior enlisted positions in our aviation maintenance force. Notably, airworthiness standards and OR rates will improve greatly.

Conclusion

Goals, such as the pure two-level maintenance structure and master technician workforce, may seem out of reach today. However, how many students at Gary AFB would have ever believed that we now would have greaseless bearings in rotor systems or flight control systems that use electrons to change blade pitch instead of push-pull tubes and bellcranks?

Technology and maintenance are fast-moving trains. ❐

Anatomy Of An Air Crash



The Early Phase

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Introduction

This article paints a picture of what happens in a well-orchestrated, well-planned, and well-rehearsed response to an aircraft disaster during the period before the accident and lasting 1 to 2 hours afterwards. This period is known as the early phase of the accident.

Disaster response plans should be simple, short, and coordinated. They should have tabs for easy access. They are driven by algorithms so that even a person new to the job can pick up the plan and react appropriately to the situation.

A military unit conducts frequent announced and unannounced evaluations of its plan, testing all potential resources.

Video taping the response, each agency reviews its actions in afteraction sessions. The plan is revised, incorporating lessons learned in the new edition.

The detailed plans each section should follow to support the general plan and accomplish the mission are beyond the scope of this article. For example, the dispensary recall plan could not only recall the medical staff, but also the local dentists who may be used to augment the physicians in the clinic.

Scenario

The setting was an early January evening on a cold winter's day even for Germany. A CH-47D Chinook was returning from its final sortie of the day. Onboard was a weary infantry platoon, 34 soldiers who had been in the field training for 2 weeks. Anxious to get home for a hot shower and some off time, most were now sleeping, their exhausted bodies lulled by the constant drone of the helicopter's engines.

The crewmembers were seasoned veterans in this aircraft. They consisted of a pilot (chief warrant officer [CW4]), copilot (CW3), a flight engineer (staff sergeant), and a crewchief (specialist 4).

The day started like any other day . . . physical training, shower, breakfast . . . then to the mission briefing. After being briefed on the day's activities, they walked around the corner and listened to the weather forecast. The forecast was for clear, cold weather. The chance of precipitation was low; they should have unlimited visibility throughout the day.

So far, everything had gone like clockwork. The preflight inspection found the aircraft's maintenance to be up-to-date. After their inspections, the pilots and crewchief were satisfied the aircraft was ready to fly. Up to now they were right. No problems had occurred during the prior three extractions of the day. The aircraft had performed flawlessly, transporting the passengers to their home station.

About 20 minutes from the heliport, the pilot received approval to change radio frequencies. He contacted his home airfield for clearance to land, disembark the passengers, and secure the aircraft for the night. The tower gave approval for a straight-in-approach to runway 27. This approach brought them over a small village just east of the heliport. The corridor was flanked by a large housing area to the south and the American military facilities to the north. The sky was clear. The pilot took the opportunity to help train the air traffic controllers in their ground controlled approaches (GCAs). He had flown these approaches a thousand times before, but it was required to stay current.

The controller's instructions came over the Chinook's radio: "Approaching glide path . . . slightly left of glide path . . . come right to 270 . . . on course . . . on glide path."

The crew could see the airfield now. It was dusk and the runway lights were lit. The familiar rotating beacon, a green light followed by a split, white light marked the military heliport. There was nothing to do now but follow instructions and go home.

Then it happened. Just before reaching the chain-link fence that surrounded the airfield, the pilot saw a glimpse of a silver object a split second before it hit the forward blade. He reacted and bank away from the object. In doing so the aircraft lost power, dipped, and caught its aft section on a fence, shearing the aft rotor. The bird rolled to the left, split apart, and threw its passengers across the approach. Later, an investigation revealed the object the pilot saw was a remote-controlled airplane. It had strayed from the local housing area and hit the Chinook's forward rotor blades. For the small American community, a disaster had occurred. The time was now 1638.

The controller in the tower was watching the approach as he sipped on his soda. The shift ended at 1700. He did not see what caused the crash, only that it happened. After a few seconds of disbelief, he picked up the crash phone and opened his three-ring binder to "Annex C, Crash Notification." This annex gave the three phases of the notification process—immediate, secondary, and delayed.

The phone automatically dialed the military fire department, the military police (MP), the local medical dispensary, and the local duty officer. When all the subscribers had answered, the controller flipped to the red tab marked "immediate." Following a preprinted form, he gave the details of the crash. "This is not a drill; this is not a drill" preceded the report, instilling its emergency nature.

As part of the airfield's standing operating procedure (SOP), the controllers exercised the disaster plan telephonically monthly. They practiced the plan through level 1 (immediate) quarterly, through level 2 (secondary) semiannually, and the entire plan annually.

"Time . . . 1638; aircraft . . . CH-47; location of crash . . . sector Echo 6; command post . . . sector Foxtrot 7; fire . . . yes; passengers . . . unknown; cargo . . . unknown; fatalities . . . unknown; wind . . . 0-3 knots; time now . . .

1640." (The airfield map and the map of the local flying area had a grid overlay to help pinpoint the crash site.) This simple message conveyed the important elements of the crash to the immediate responders.

At the MP station, the desk sergeant was thinking about the drunks he would have to tend to this night. It was Friday, payday, and a full moon.

He had only three of five authorized patrols out in the community, and the station was at 60-percent strength. If the station did not get in some new people, even the marginal effect the MPs now made in the community would not exist. The hot line rang; he looked at the clock . . . 1639. An unannounced drill no doubt; just what he needed with his "real world" problems. He picked up the phone . . . said, "MPs," and listened. Fumbling for a pencil and grabbing for the preprinted crash form on the wall, he copied the information line by line. After the message he replied, "MPs good copy . . . Alpha, Charlie," giving the tower his initials for their records.

After a deep breath, he turned his chair to the MP radio and relayed the information to the three patrols in the community. Within seconds they were proceeding "blue light" to sector Foxtrot 7, the designated command post for the crash.

Like the events at the MP station, the personnel at the fire station, colocated with the airfield tower, copied the message. Within 90 seconds, the firefighters had donned their protective gear, cranked up the firetruck, and proceeded down the taxiway toward the burning fuselage. The fire chief followed and set his vehicle at a point upwind of the crash in sector Foxtrot 7. Here he established his command post to direct the rescue effort.

In the dispensary 20 patients were waiting to be seen in the treatment room. This dispensary, structured at the lowest level of emergency care, could only respond with an ambulance, medic, and physician. Although staffed with seven physicians and five nurses, a limited laboratory, and x-ray, these assets served the 60,000 patients that flowed through the halls each year. After hours, they could only stabilize patients and transport the critical ones either to the local German hospital or to the U.S. Army hospital 25 miles away.

When the phone rang, the background noise of screaming children and impatient patients muffled parts of the message. When it came time to acknowledge, the nurse who answered the phone said, "Say again lines 1 and 4." The tower repeated the lines and she responded, "Good copy . . . Papa Sierra."

At once she asked if any of the patients had a problem that required immediate attention. She asked those who did not to leave the registration area. She then called for the duty physician, the ambulance driver, and the medic on duty. When they arrived, she briefed them on the situation.

Upon completion of the briefing, the medic placed the crash bag (a satchel stocked with intravenous [IV] fluids, bottles of saline, bandages, etc.) in the ambulance. The physician opened the narcotics cabinet, took out the prepackaged supplies, and signed the preprinted receipt for accountability. The driver started the vehicle after placing more spine boards and the remaining crash supplies in the back of the ambulance.

As the medic passed the physician's work station, he grabbed the portable radio from its recharger. The three were on the way to the crash site within 2 minutes.

The nurse and the charge-of-quarters (a nonmedical person) remained at the hospital to begin an in-house triage. They informed the patients of the potential delay for treatment and set up the dispensary's recall plan for both medical and dental personnel. Next, they posted large direction signs in and around the building. These signs reconfigured the building and assisted the staff in patient flow. They were ready to accept and treat mass casualties. Meanwhile, the nurse alerted the local German hospital, the Military hospital, and the local ambulance service operated by the German Red Cross.

As the emergency responders converged on the crash site, the tower contacted base operations for the details of the mission. Before any military mission, a briefing form must be filled out and approved. This form, with the manifest listing the passengers and crew, is filed for such an emergency. Now the air traffic control personnel had a count of personnel on board. They knew the aircraft was not carrying any unexpected hazardous materials. The tower relayed this information to the primary responders.

The firetrucks arrived on the scene first. Except for the crackling of the flames and an occasional moan, the area was quiet. The magnesium aircraft had broken into two sections with the rotor blades scattered over an area covering several hundred meters. One blade had been driven halfway through the chain-link fence. The forward fuselage section emitted a brilliant white light from the burning magnesium. Through the

smoke, the firefighters could see the wreckage of the aircraft, and the bodies of the passengers scattered through the gnarled metal.

The trained fire crew went into action. No one could remember the last time an aircraft had crashed at this airfield, but the constant drills and training were now paying off. The crew foamed both sections of the shattered hull, donned their oxygen, and proceeded inside the broken hull to extract anyone trapped inside. Meanwhile, the ambulance arrived and, within seconds, the MP patrol units were on the scene.

Both the ambulance and the three patrol cars reported to the fire chief's command post. Next to the chief was an assistant, the recorder, trying to keep track of the orders and decisions, writing them in a chronological log.

All personnel responding to the crash were easily identified. The firefighters wore distinctive protective gear and supplemental air sources. Their leaders had their titles stenciled on their suits. The MPs wore black brassards with the letters "MP" affixed in large, white cloth. Medical personnel wore white arm bands with large, red crosses centered on them. The doctor wore the long, white laboratory coat he was wearing when the call was received.

After a 30-second update and an estimate of the situation, the fire chief and senior MP decided the MP patrols should to block the three major roads into the area and call for help to cordon off the area. It was quitting time. The major road from the base to the housing area was just outside the mangled fence. The MP units were dispatched. The fire chief directed his recorder to contact the duty office to assemble the Augmentation Readiness Force (ARF). The ARF is a platoon of 49 soldiers tasked to be ready on 10 minutes notice. The soldiers are used to augment any need the community might have from a terrorist threat to a civil disaster. The chief also wanted to know the location of the installation duty officer (IDO). As the recorder was getting through on the IDO's cellular telephone, the IDO drove up.

The fire chief briefed the IDO, who approved the plan of action. The IDO instructed the ARF to help secure the area. He then called the commanding general to inform him of the situation, and the personnel officer (G-1) to initiate his cascade of notifications. The G-1 called the chaplain and the division psychiatrist to help with the needs of the survivors, families, and the responders. The IDO called the division surgeon to help with medical care; the casualty assistance officer, to help the families of the deceased; and the public affairs officer, to submit and monitor press releases.

The ARF arrived on the scene within 6 minutes of its initial call. The soldiers had just finished their evening meal. The platoon leader was conducting a readiness inspection. The soldier's billeting was less 1/2 kilometer away. The ARF responded with all its prescribed gear and radios. The soldiers wore orange vests that made them easy to identify. Upon reporting to the command post, the fire chief and IDO briefed the lieutenant. After several questions, the lieutenant returned to brief the operation to his soldiers. As the soldiers deployed to help the MPs and cordon the area, the lieutenant kept two soldiers from each squad to help the medics as litter bearers. He gave his platoon sergeant a list of supplies that would be needed to help control access to the crash site—cloth tape, tent stakes, barbed wire, etc.

To the crew onboard the ambulance, the amount of work to be done was overwhelming. They could not yet get in close to the fire. In one instance, when a young medic wandered too close to the burning aircraft, the firm hand of a German firefighter grasped his shoulder and said, "Nein . . . sehr heisse!" ("No . . . too hot!")

The physician moved from patient to patient. He knew from the tower relay that they should have 38 patients somewhere out here; that is, if they did not hit any ground personnel, or if none wandered off. What if they did hit someone on the ground, and one of the victims wandered off? How are we going to get a good count? "My God . . . 38 patients and only one medic and me." The physician directed the ambulance driver to radio the dispensary to determine if more physicians and ambulances were on the way. The driver established a ground ambulance parking and loading area. He also established a landing pad for helicopter evacuation. The radios were set on the standard medical evacuation frequency.

Motioning for his medic to follow, the physician began examining the closest victim. The medic drove stake number one near the first patient to mark the spot where he lay. The physician started with his initial brief assessment and quickly determined that the soldier was dead. The medic attached a triage tag to the body, checked the deceased block, and placed a black streamer to the stake. The process took only seconds. They then proceeded methodically from victim to victim starting IVs, providing first aid, and categorizing (triaging) each patient. When they completed the initial triage, they were up to tag number 20. Eighteen people were missing.

While waiting for the all clear from the firefighters to go inside the wreckage, the medical team sent litter bearers from the ARF to retrieve the injured patients. The bearers gave priority to those marked with a green streamer. During the initial triage, these casualties were thought to need immediate medical care. The bearers gave priority next to those marked by a yellow streamer and then by a red one. The deceased, marked with black streamers, would remain until photographs, notes, and sketches could be compiled. The physician and medic now set up their triage site. For now, the deceased would remain littered throughout the site. Priority was given to those with the greatest chance to live.

As the teams brought in each victim, the physician again made an assessment; each patient was placed in a triage area. He conveyed orders and accomplished more complicated medical procedures. He examined the chest tubes and endotracheal tubes placed in the patient at the crash site. He gave more treatment to victims, if needed.

The first German ambulance arrived 7 minutes after its initial call. The German "Notarzt" (emergency physician responder) arrived a few minutes later. He spoke excellent English. He managed the field aid station, relaying orders in both English and German. The Notarzt rendered medical care at the rear site and evacuated his patients either by an American or German ambulance, medical aircraft, or nonmedical aircraft to the closest capable medical facility. Ambulances took the least injured to the local dispensary, immediate trauma cases to the German hospital, and the least urgent cases to the American hospital. Each facility waited with uneasy anticipation for the injured to arrive. The fire was extinguished. The firefighters had neutralized the hazards onboard. The firefighters began removing the few remaining survivors in the aircraft. Trained by the local dispensary, they paid close attention to protecting the spinal column, especially the cervical spine, while removing the victims.

The American physician now found it easier to remain in a stable forward location. The litter bearers carried the patients to him for initial triage and evaluation. By now several medics, who lived in the barracks, had arrived at the accident scene and joined in both the forward and the rear aid areas. The tasks were now like clockwork—initial triage, lifesaving steps, categorizing, back to rear aid area, reevaluation, further stabilizing procedures, and evacuation.

The American physician looked at the next triage tag . . . number 39 . . . "Is this all? Boy, I hope so!" The system was working, or at least it seemed to be. He went back to the rear triage area. As he looked out over the crash site, he saw that the wreckage was scattered over more than an acre. Searchlights, mounted on M-1 Abrams tanks, filled the area with light. The tanks formed the posts of the perimeter securing the crash site. A stream of white cloth engineer tape stretched along the course of the concertina that marked the perimeter of the crash. He looked at his watch for the first time since he left the dispensary . . . 1730 . . . all this in less than an hour. He continued his surveillance. The flight surgeon had arrived and was trying to recreate the accident. He photographed the crash site and fatalities, particularly the crew, and took notes.

The litter bearers were now moving the patients. The dead would have to wait until the completion of the photographs. Next to each tent stake with a black streamer lay a blanket covering a corpse.

The firefighters had worked quickly and accurately bringing the fire under control. They unhooked the aircraft batteries to prevent sparking and removed those who had not perished in the crash and subsequent fire.

The count . . . 18 dead, including the crew. Of the 20 survivors, 4 had little chance of survival with severe head and abdominal injuries, 2 were minimal, the rest immediate. The 14 immediate patients were either transported by air to the U.S. Army hospital 10 minutes away or by German ambulance to the local German hospital. The least-injured patients were transported later to the dispensary for evaluation and then by ground to the U.S. Army hospital.

The last patient was evacuated, and the American physician thanked his German counterpart. The Notarzt boarded his vehicle and proceeded "blue light" to the hospital to help his colleagues treat the six patients sent to them. They would need his help; he was one of three anesthesiologists on staff. The American physician walked to the command center and briefed the fire chief and the IDO. Then, drained from the past hour's activities, he gathered his medics and equipment, said good-bye to the flight surgeon, boarded the ambulance, and rode back to the dispensary. It was only 1830 and his shift did not end until 2300. As he walked through the doors of the dispensary, he could see the faces of 20 patients whose complaints could not wait until sick call the next morning.

Would the units at your post have responded this way? ❐

Leader Development in the 1990s

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It is now time for the change of command of your platoon, company, or battalion. Your unit has done many great things, but will the leaders you leave be ready to carry the guidon in your absence? What legacy have you left your battalion? The accolades fade quickly, but the knowledge you have imparted to your subordinates is a lasting piece of your personal command philosophy and mentorship. We owe it to our junior leaders to teach, mentor, and train them to go to war, to fight, and to win. The rigorous requirements of battle dictate that we include the spirit of winning in a leader development training strategy.

This article prescribes one method of executing a workable, functioning leader development program (LDP) in your unit. It applies equally to the noncommissioned officer (NCO) and the officer corps. A game plan for an LDP is an essential part of a quarterly training program. Classes should relate and link directly to the upcoming training for a given quarter.

Components of an LDP

First, let us look at the components of an LDP. We will assume that soldiers and leaders are properly received into a unit, and basic skills have been mastered; that is, common task test (CTT), self-development test (SDT), physical training test, small arms qualification, etc.) (See figure 1 for components.)

The four key elements of LDP are—

Reading Program. The reading program is described in military

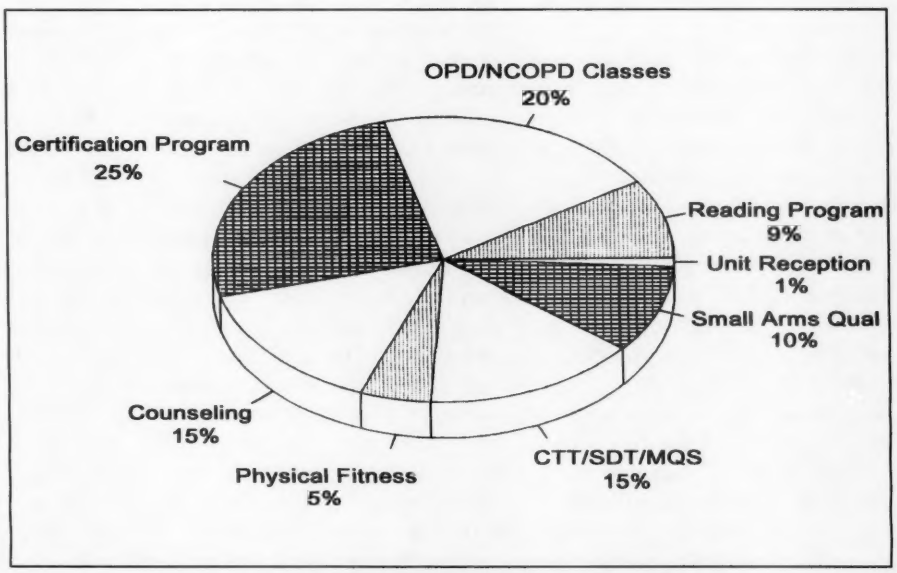


Figure 1. Leader Development Program Components

qualification standards (MQS) manuals, and is now being done well in many units. The key is to broaden the horizons of officers and NCOs, focusing on material related to their military occupational specialty, mission essential task list (METL), and other requirements for war. The sources for books include reading lists of the Command and General Staff College, Fort Leavenworth, KS; U.S. Army Military Academy, West Point, NY; and branch service schools. The battalion commander approves books for his unit. The reading program, however, is an "on your own" deal, but should combine with the current officer and NCO self-development programs.

Officer Professional Development (OPD) and Noncommissioned Officer Professional Development (NCOPD) Classes. All classes focus on hands-on training. This training must be tactically or technically relevant, and should be conducted on equipment in a tactical environment. Classes are conducted each week. The time for classes varies based on class, location, and resources available. Only the battalion commander or command sergeant major (CSM) excuse leaders from classes. This training is serious business. Commanders and leaders must enforce mandatory attendance to make the training work.

Certification Program. Certification is a result of the evaluation of the technical and tactical level of competence in leaders. When done well, this program creates pride in one's unit and self as being "a special part of a special unit." Also, it creates bonds among the leader and the led, and further gels a common understanding of warfighting standards in a unit.

In a cavalry squadron, spurs are awarded after the soldier successfully completes all requirements for the "Order of the Spur." The award could easily be "Order of the Wrench" for a maintenance battalion or "Order of the Bayonet" for an infantry battalion. Standards may be higher than published standards, purely driven by the METL and the commander's intent.

Performance Counseling. Performance counseling provides timely feedback to all soldiers in a unit on duty performance. Also, it provides subordinates with expectations and performance standards. All soldiers, from battalion leaders to young, newly arrived soldiers, deserve that feedback. A system is necessary to ensure that performance counseling happens each month. Staff duty responsibilities, special projects, and other duties directly impact on leader development. Duty performance in these areas should be included in monthly counseling by leaders.

Let us take a closer look at the LDP program to see how the elements fit into the quarterly training program.

Reading Program

The battalion S-3 publishes an approved reading list.Branch schools, MQS manuals, and skill qualification test manuals provide excellent references. Officers submit a book review from the approved reading list each quarter. They turn in completed reports through operations and plans (S-3) to the battalion commander for evaluation and feedback. Battalion commanders provide each officer an appraisal on writing strengths and weaknesses. When a leader departs, the simple tradition of purchasing a book to give to the battalion builds a healthy professional reference library for leaders of the battalion.

OPD/NCOPD Program

The OPD/NCOPD program is the capstone of the LDP.The battalion commander or CSM approves topics for each class, including tactical and technical requirements for the next 3 to 6 months. Classes must be directly related to the unit METL and must mesh with the training program. Each unit prepares assigned classes and teaches the classes, assigning instructors based upon their experience and background.

The leaders of a unit, when tasked with the requirement to prepare a class, coordinate with the S-3, commander, or CSM for further guidance in preparing the class. A typical sequence of a class follows:

- 0800-0810 - Opening comments by commander or CSM
- 0810-0820 - Threat update by Intelligence (S-2)
- 0820-1000 - Class on given topic
- 1000-1200 - Practical exercise

These classes, when conducted to standard, are proven winners, because they improve leader warfighting skills in specific areas for a given class. In one instance in our squadron, a training deficiency surfaced. Our junior leaders were not preparing platoon orders properly. An orders class was designed, requiring platoon leaders (scout, artillery, armor and engineer) to prepare adequate orders, under time constraints, and to standard. An afteraction report followed. It is important to have an open, honest environment that focuses on learning where learning really takes place. These classes, such as a simple task-force-level terrain board exercise, must involve the entire group. The atmos-

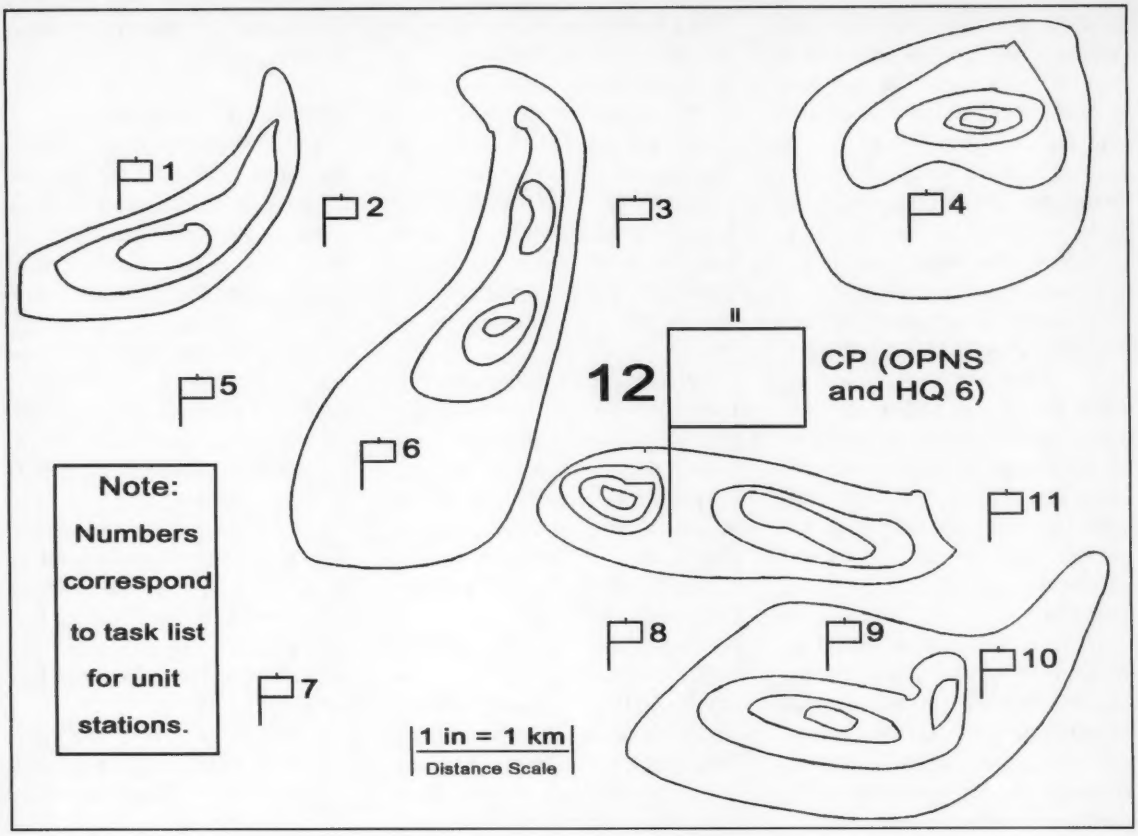


Figure 2. Certification Command Post Setup

phere must provide for questions and discussion. Lectures are not hands-on or performance oriented and should be avoided at all costs.

Certification Program

The certification program has three parts—prerequisites pre-scribed by the commander or CSM, certification "ride," and awards ceremony. Candidates must meet the prerequisites to even qualify for the certification ride.

Certification "Ride"

The certification ride is the capstone event of the certification program and occurs when enough candidates have completed the prerequisites. It is a 24- to 36-hour, miles-driven exercise, including the issuance and execution of tactical exercise orders to all candidates. The "ride" tests individual and group dynamics of candidates as they prepare and execute the "ride." (See figure 2 for a schematic for course layout.) Tactical tasks (grading organization listed in parentheses) are as follows:

Task (Grading Organization)

1. Land navigation (A Company [Co])
2. Knowledge of cavalry mission/tactics (S-3)
3. Communications (B Co)
4. Nuclear, biological, chemical (C Co)
5. Weapons (D Co)
6. First aid/vehicle evacuation (Headquarters and Headquarters Troop)
7. Soviet tactics/weapons (S-2)
8. Mines (Engineering commander)
9. Dismounted patrol (Scout platoon)
10. Call for fire (Fire support officer)
11. One task at discretion of battalion commander (Bn Cdr) (to be determined)
12. Final outbrief with Bn Cdr (Final station for all candidates)

Task, conditions, and standards for each test site are published in advance. Candidates are tested (with option of retest) at each station. As they move between stations, candidates are evaluated on their abilities to conduct mounted movement (both day and night), using highly mobile multipurpose

wheeled vehicles. Certification ride resources must be planned and integrated into the quarterly training plan.

Final approval for the awarding of the spurs, bayonets, or wrenches rests with the battalion commander. There are no appeals.

Awards Ceremony

Candidates receive awards at a formal dinner befitting the occasion. The sequence of events varies, but should include a formal ceremony awarding spurs to each member who successfully completed the certification ride, skits, and other team-building events.

Summary

The legacy we leave our units must center on a sound, functional leader development program. The four key components of that program are reading, OPD/NCOPD, certification, and performance counseling. This program must link directly to the unit METL, be planned as an integral part of the training program, and be closely supervised by the commander and his CSM. The program develops thinking, innovative leaders for the future, and helps the commander forge a close-knit, disciplined team.

The team will develop a common understanding of: who they are, what is expected of them within the unit METL, and what the commander sees as his key warfighting issues. We do not have a choice in leader development. It is our investment in the future of our soldiers, and our Army. Making the LDP a challenge, while having a bit of fun, are the ingredients for a great program focused on training today's leaders for tomorrow. ❐

UNIVERSAL TRAINING SYSTEMS

Western Region Aviation Survival School

The Western Region Aviation Survival School, Lake Oswego, OR, has scheduled the following classes for the remainder of fiscal year 1993:

Date	Course Title	Class Number	Location
10 - 15 Jan 93	Cold Climate Survival	9388 SC	Ely, MN
17 - 22 Jan 93	Cold Climate Survival	9389 SC	Ely, MN
14 - 19 Mar 93	Basic Land Survival	9390 SB	Annville, PA Portland, OR
21 - 26 Mar 93	Basic Land Survival	9391 SB	Annville, PA Portland, OR
18 - 21 Jul 93	Survival Instructor Course	9392 SI	Portland, OR
09 - 14 May 93	Basic Land Survival	9393 SB	Annville, PA Portland, OR
16 - 21 May 93	Basic Land Survival	9394 SB	Annville, PA Portland, OR
06 - 11 Jun 93	Hot Climate Survival	9395 SH	Marana, AZ
13 - 18 Jun 93	Hot Climate Survival	9396 SH	Marana, AZ
11- 14 Jul 93	Overwater Survival	9397 SW	Portland, OR
18 - 21 Jul 93	Overwater Survival	9398 SW	Portland, OR
12 - 24 Sep 93	Survival Instructor Course	9399 4 SI	Portland, OR

Mobile Training Team (MTT) courses can be scheduled to meet training needs and requirements in all states. Normal scheduling should be done 90 days in advance. An **URGENT** class can be scheduled upon notification. All Western Region Aviation Survival School survival courses carry college credit and may be applied to the civilian educational requirements. For further information, you may call Mr. Frank Heyl, director of training, 503-636-6254 or write to Universal Training Systems, 15200 S.W. Twin Fir Road, Lake Oswego, OR 97035.

Equivalency Evaluations

by Chief Warrant Officer (CW3) David J. Bean

What is an equivalency evaluation, commonly known as "challenging the course"? What is the best way to prepare for it? These are the questions most often asked.

Army Regulation 95-1, paragraph 4-11c, states, "To become qualified as an instructor pilot (IP) for helicopters or airplanes, an aviator must successfully complete the following: (1)(b). An IP equivalency evaluation administered by an SP [Standardization Instructor Pilot] selected by HQDA [Headquarters, Department of the Army], in the mission, type, and design aircraft in which IP duties are to be performed." The same equivalency evaluation criteria are true for qualification as instrument flight examiners (IEs), and maintenance test pilots (MPs). For nonrated crewmember flight instructors (FIs) Training Circular 1-210, paragraph 3-5c(3), states that nonrated crewmember FI qualification regulations require "coordination with DES [Directorate of Evaluation and Standardization] to coordinate equivalency evaluations."

The IP or IE equivalency evaluation is designed for active duty, Reserve, and National Guard aviators to receive IP or IE designations without attending the resident course. This type of evaluation has been helpful to Reserve and National Guard commanders. Often Reserve Component aviators find it difficult or impossible to remain away from their full-time employment obligations for the length of the resident course.

Applicants must meet all requirements for the U.S. Army Aviation Center (USAAVNC), Fort Rucker, AL, course outlined in DA Pamphlet 351-4. The Memorandum of Instruction for the IP or IE equivalency evaluation issued by DES outlines more documentation requirements. Applications must be submitted by the individual's commander, through his chain of command and the Commander, USAAVNC, ATTN: ATZQ-ESF, Fort Rucker, AL 36362-5214; to HQDA, ATTN: DAMO-TRS, Washington, DC 20310-0450.

The IP evaluation normally will be conducted during a 3-day period. The 3-day evaluation is based on a one-to-one examinee to evaluator ratio. Additional time may be required if a two-to-one examinee to evaluator ratio is requested.

The first day will consist of the Instructor Pilot Course written and oral examinations for contact and tactics (day, aided and unaided). The written evaluations, exclusive of the open book operator's manual examination, are based on criterion testing (e.g., the examination has 6 scorable units consisting of 50 questions. Each scorable unit has a standard.) The second day will be used to administer the day portion of the flight evaluation and oral examinations according to the appropriate USAAVNC flight training guide (FTG). At a minimum, the flight evaluation will include all tasks listed in the appropriate USAAVNC program of instruction (POI) and FTG or aircrew training manual (ATM) supplement. Day three will be used to administer the aided and unaided night portion of the evaluation.

Failure to meet any prerequisite or failure of any portion of the examinations will cancel the evaluation. Equivalency reevaluations will not be conducted. An individual who fails any portion of the evaluation must attend the resident course to obtain initial IP or IE designations. The examinee will be designated as an IP in the applicable aircraft design or series when he successfully completes the written, oral, and flight evaluations.

A qualified IP could train the applicant in tactics, unaided night procedures, and night vision goggles while awaiting approval to conduct the touchdown emergency procedures training (EPT). EPT approval typically takes up to 6 weeks. The instructor in charge of academics should review material before training the applicant. Academic material may be requested by contacting DES (ATZQ-ESF).

The IE evaluation normally will be conducted during a 3-day period. The first day will consist of the Rotary Wing Instrument Flight Examiner Course (RWIFEC) written examinations. The second day will consist of a pilot instrument proficiency evaluation that parallels the RWIFEC Stage I evaluation. As a minimum, the examinee will perform all flight tasks from the pilot's station. The third day will consist of a left- or front-seat instrument instructor or IE proficiency evaluation that parallels the RWIFEC Stage II and Stage III evaluations. At a minimum, the examinee will perform all flight tasks from the copilot's or gunner's station. All oral and flight evaluations are made according to the appropriate ATM. Evaluated tasks will include all additional tasks specified as mandatory for evaluation in the RWIFEC Flight Training Guide or POI. The examinee will be designated as an IE in the applicable aircraft category when he successfully completes the written, oral, and flight evaluations.

Questions regarding equivalency evaluations should be directed to Commander, USAAVNC, ATTN: ATZQ-ESF, Fort Rucker, AL 36362-5214, DSN 558-3504/6309, commercial 205-255-3504/6309.

CW3 Bean is assigned to DES, USAAVNC, Fort Rucker, AL.

Directorate of Evaluation/ Standardization

DES inquires may be sent to: Commander, USAAVNC, ATTN: ATZQ-ES, Fort Rucker, AL 36362-5208; or call DSN 558-3504 or commercial 205-255-3504. After duty hours call DSN 558-6487 or commercial 205-255-6487 and leave a message.

OH-58D Kiowa Warrior Training

by Staff Sergeant (SSG) David R. Jordan and SSG Herbert Ramirez

In January 1990, Secretary of the Army, The Honorable Michael P. W. Stone, signed a memorandum approving the Armed Retrofit Program. The program will arm fully the 243 OH-58Ds belonging to the Army. The task of developing a course for each military occupational specialty (MOS) affected by the memorandum became a priority of the U.S. Army Aviation Logistics School (USAALS), Fort Eustis, VA.

The MOSs affected were 68FW5 (aircraft electrician), 67S (OH-58D helicopter repairer), and 68J (aircraft armament or missile systems repairer). To prepare for this training, USAALS provided subject matter experts (SMEs) to Bell Helicopter to monitor development of the lesson plans. The SMEs reviewed the lesson plans to ensure that they were written according to U.S. Army Training and Doctrine Command regulations and policies.

The Department of Attack Helicopter Training, Scout Helicopter Division, USAALS, was responsible for training MOSs 68FW5 and 67S; therefore, both courses needed only modifications. The 68FW5 course was modified to incorporate new wiring and familiarization of the new line replaceable units being used within the weapon systems. Sixteen more hours were added to the existing 67S course to incorporate safety procedures and loading and downloading procedures of the helicopter weapon systems. The 68J was a different story; since it is a new weapon system, a course had to be developed that would be identified as 68JW5.

The first 68JW5 class began on 1 June 1992. The first 22 academic hours of instruction are subjects generic to the four weapon systems. These subjects are the mast-mounted sight, control and display systems, universal weapons pylon, and military standard-1553B data bus interface. After the students complete the common subjects of instruction, their next 233 academic hours of instruction consist of 34 hours for the 2.75-inch rocket system; 57 hours for the .50-caliber machinegun system; 62 hours for the air-to-air stinger; 56 hours for the helicopter launched fire and forget missile system; and 24 hours for weapon systems boresighting.

New training devices were necessary to teach the armament course effectively. The first of these trainers to arrive was the armament maintenance trainer (AMT). The AMT enables the instructor to teach loading and downloading, boresighting, and removal and installation of the four weapons systems to include the universal weapons pylon.

Within the next 2 years, delivery of a composite armament trainer (CAT) and a composite electrical trainer is scheduled. The composite trainers are designed to provide system operational checks and system troubleshooting procedures. The instructor has fault-insertion capability via a computer console. The computer allows the instructor to insert multiple faults to enhance the students' troubleshooting skills. Meanwhile, CAT A storage, Kiowa Warrior aircraft are being used to teach tasks that will be taught later on composite trainers.

Students also receive training via classroom system trainers (CSTs). The CST is a learning tool that uses a combination of computer and video displays; the video is aided by a laser disc player. Instructors can oversee and monitor the students' progress. Students advance at an individual pace and can review a subject to help reinforce the material. Students will complete a check-on-learning after each block of instruction to decide how well they retain the information.

Besides resident courses being taught at Fort Eustis, VA, the Scout Helicopter Division is supporting the new equipment technical training (NETT) effort for the Kiowa Warrior. The 68FW5 NETT is 16 academic hours, the 67S NETT is 32 academic hours, and the 68JW5 NETT is 120 academic hours. The first NETT effort was conducted at Fort Bragg, NC, with future NETTs to be conducted in Korea and Fort Rucker, AL.

Now that 68F and 67S training has been upgraded and the newly developed 68JW5 course is on line, the Scout Helicopter Division is meeting requirements to train all aspects of the Armed Kiowa Warrior.

SSG Jordan and SSG Ramirez are assigned to U.S. Army Aviation Logistics School, Fort Eustis, VA.

U.S. Army Aviation Logistics School

Readers may address matters about aviation logistics to: Assistant Commandant, U.S. Army Aviation Logistics School, ATTN: ATSQ-LAC, Fort Eustis, VA 23604-5415

UAV

by Mr. Wayne Hair

More than 100 years ago, the 10th Cavalry "Buffalo Soldiers" crossed the high desert of Arizona in search of renegade Apache Indians. Indian scouts, with their stealth and cunning, would search and find the enemy and then ride back to inform the cavalry commander of what they observed.

While technology has advanced combat intelligence gathering during the past century, the human element on or behind the front line has always been necessary. The human element soon will be replaced by the unmanned aerial vehicle-short range (UAV-SR) system. The U.S. Army Test and Experimentation Command Intelligence and Electronic Warfare Test Directorate (IEWTD), Fort Huachuca, AZ, recently conducted a UAV Limited User Test.

The purpose of a UAV is the same as that of the indian scout and aeroscouts. However, the method eliminates the need for a soldier to place himself in harms way to collect combat intelligence. With the UAV, the soldier remains within the safety of his forces. He manipulates a small unmanned airplane deep over enemy territory to gather vital intelligence.

There were two critical issues to be answered with the test data collected. First. does the UAV-SR system satisfy the commander's unmanned aerial reconnaissance, surveillance, intelligence collection, and target acquisition requirements? Second, how well suited is the UAV-SR system to operations in a low- to mid-intensity combat environment?

To answer these critical issues, the remote-controlled UAV was flown day and night at altitudes ranging from 3,000 to 12,000 feet above ground level in a variety of missions and scenarios. The UAV also carried two imaging payloads.

The UAV operators for the test were from a unique UAV platoon at Fort Huachuca, augmented with U.S. Marine Corps personnel. Approximately half the operators were Operation Desert Storm veterans of UAV operations.

The threat forces were supported by the 1st Battalion, 14th Infantry, 25th Infantry Division, Schofield Barracks, Hawaii. Specific target arrays, stationary and moving, were formed by the troops at precise points in and around the Coronado National Forest next to and on Fort Huachuca. These targets ranged from small groups of soldiers and vehicles to as many as 50. Nonstandard targets also were employed, including horse-mounted soldiers, to replicate third-world guerilla warfare units.

The IEWTD will be involved in similar UAV testing for the next several years. The UAV Joint Master Plan will harmonize requirements among all the services to develop a UAV system architecture and ensure interoperability among systems and subsystems.

This short-range UAV (named the "Hunter") was used in TEXCOM operational tests.

Mr. Hair is the Public Affairs Officer assigned to the U.S. Army Test and Experimentation Command, Fort Hood, TX.

Test and Experimentation Command

Readers may address matters concerning test and experimentation to: Headquarters, TEXCOM, ATTN: CSTE-TCS-PAO, Fort Hood, TX 76544-5065

MAMS

by Mr. Robert C. Cole

The Military Airspace Management System (MAMS) is the result of a 1987 General Accounting Office (GAO) study. As a result of this study, the Department of Defense (DOD) was criticized for improperly managing special use airspace (SUA).

SUA is airspace of defined dimensions identified by an area on the surface of the earth wherein certain activities must be confined because of their nature and/or wherein limitations may be imposed upon aircraft operations that are not part of those activities. Types of SUA are alert areas, controlled firing areas, military operations areas, prohibited areas, restricted areas, and warning areas. SUAs are described best in Federal Aviation Administration Handbook (FAAH) 7110.65 and the Airman's Information Manual.

The genesis of the GAO study was that the military does not maximize use of existing SUA, maintain a data base to justify SUA retention, or maintain data to serve as a basis for SUA decisions. The study also showed the military's need to improve joint civil/military SUA use.

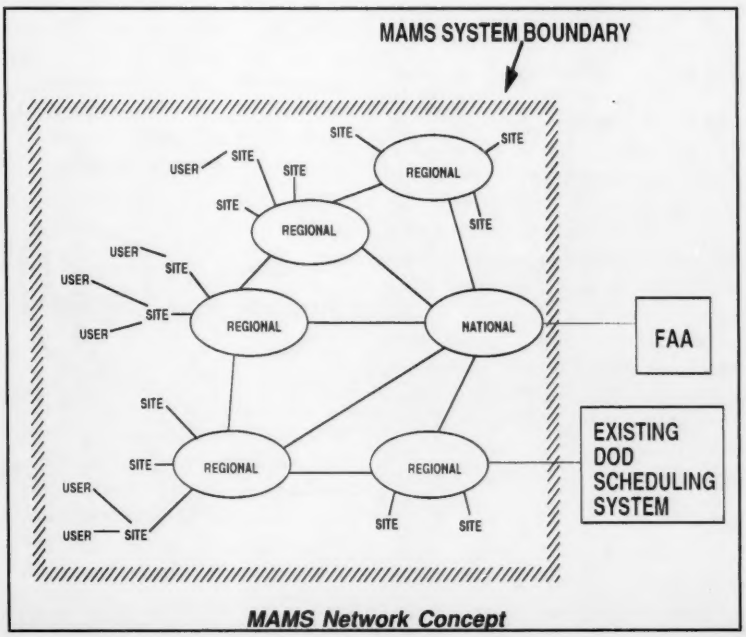
The military services jointly decided an automated continental United States-wide information network for scheduling DOD SUA was required. The system also will provide utilization statistics, conflict detection and resolution, and automatically release SUA to the FAA when not needed for military use.

During July 1990, MAMS began as a six-phase, 18-month prototype development effort. MAMs went through all six phases with DOD's Steering Group of the Policy Board for Federal Aviation monitoring the users' group activity. The prototype is scheduled to be installed at the R-2508, Edwards Air Force Base, CA, during the summer of 1992.

A new users group will be formed consisting of members of all services to assure this system satisfies all user requirements. The system is envisioned to operate through five regional nodes that will be networked with an FAA National system. Local activities can schedule airspace by using commercial off-the-shelf disk operating system, compatible personal computers. User baseline requirements include the following:

- The ability to collect and report utilization data (scheduled versus actual use).
- A national military airspace scheduling system to store daily, weekly, or monthly activity schedules.
- A consolidated tool for schedules currently using either limited automation or manual methods.
- The ability to interface with an end-state FAA automated system.

The current prototype effort assures those requirements are obtainable. If MAMS remain on schedule, the system will be with the users in fiscal year 1996.



MAMS Network Concept

Mr. Cole is an Air Traffic Control Specialist assigned to the U.S. Army Aeronautical Services Agency, Alexandria, VA.

U.S. Army Aeronautical Services Agency

USAASA invites your questions and comments and may be contacted at DSN 284-773/7984 or write to: Commander, U.S. Army Aeronautical Services Agency, ATTN: MOAS-AI, Cameron Station, Alexandria, VA 22304-5050

AWO Utilization

Change. General Gordon R. Sullivan, Chief of Staff of the Army, approved the Warrant Officer Leader Development Action Plan (WOLDAP) in February 1992. In doing so, he set the stage for a major change in future Aviation Warrant Officer (AWO) utilization. When provisions of the WOLDAP are combined with the Warrant Officer Management Act (WOMA) and the Total Warrant Officer System, a cooperative effect occurs that results in a rank-based, sequential, progressive utilization template.

Utilization. One new requirement is to code AWO positions into four distinct levels of progressive utilization. These levels are WO for WO-1 and chief warrant (CW2), W3 for CW3, W4 for CW4 and master warrant (MW) for CW5. This policy means that as AWOs increase in rank they occupy positions at higher levels of organization. AWOs will still be used in one of four career tracks—safety, maintenance, training/operations, or nonrated maintenance.

Organizations and Positions. Most AWO positions are documented in modified table of organization and equipment (MTOE) units. The initiatives set into motion by the passage of the WOMA and the approval of the WOLDAP will assure the positioning of AWO experience at all levels of warfighting organizations. For the first time, experienced AWOs will occupy positions at all levels of aviation organizations. They will provide the level of expertise and experience necessary to ensure the success of any aviation operation.

Aviation Brigade. The initial template for the tables of organization and equipment (TOE) Army gives each aviation brigade and group four CW5 aviators and one CW4 nonrated maintenance officer. These CW5s will fill these safety, flight operations, and aviation maintenance.

Aviation Battalion. Medium helicopter, special electronic mission aircraft (SEMA), special operations aviation (SOA), and aviation intermediate maintenance (AVIM) battalions each will have four CW5 aviators and one CW4 nonrated maintenance officer. All remaining aviation battalions will have four CW4 aviators and one CW3 nonrated maintenance officer. These CW4s and this CW3 will perform a similar function at the battalion level as the AWOs at the brigade level.

Aviation Company/Troop. Excluding the exceptions indicated below, each aviation company/troop will have two CW4 positions. One position will be coded for the standardization instructor pilot, and the other position will be coded for the maintenance test flight evaluator. The instructor pilot, aviation safety officer, flight operations officer, instrument flight examiner, and maintenance test pilot positions at the company/troop level will be coded for CW3s, except SOA, which will have these positions coded for CW4s. Pilot positions will be coded as WO (WO-1 and CW2). Additional WO positions at the company/troop level will be coded for these officers: aviation life support equipment, aircraft survivability equipment, and electronic warfare.

Exceptions. Medium helicopter, SEMA, AVIM, and SOA are exceptions to the position coding levels stated above. These units will have CW5s at battalion-level staff and CW4s at company-level staff. These exceptions are necessary since there are no medium helicopter, SEMA, or AVIM brigades. SOA is offset by one grade level upward; that is, entry-level positions into SOA are at the CW3 level for pilot positions.

Future. To put this into perspective, the Vietnam era legacy of having many CW4s is rapidly ending. The days of the austere and lean aviation company are here. AWO budget end strength caps will continue to buy insufficient numbers of AWOs to man documented MTOE and TOE positions. As the AWO corps gets younger (both in age and rank) and smaller, commanders and assignment officers must ensure the rank and skill of the AWO match the rank and skill of the position. A CW4 cannot be interchanged with a WO-1 or CW2. When a CW4 safety, standardization, maintenance, or flight operations officer is assigned to a battalion, he will displace junior officers who may be occupying those positions. Failure to do otherwise will adversely impact career development and progression. To some, this may seem a radical shift from the old ways of doing business; it is. The definition of the roles and functions of AWOs has gradually changed over the years to reflect the reality of the combat leader role of the AWO that has existed since 1942. Each aviation brigade, group, and battalion commander will have safety, operations and training, and maintenance officers on his staff who have 14 to 20-plus years of experience in their career field. This gathering of skill, expertise, wisdom, and maturity can only enhance the warfighting capability of the most agile and lethal branch in the Army.

Aviation Proponency Office

Readers may address matters concerning aviation personnel notes to: Chief, Aviation Proponency Office, ATTN: ATZQ-AP, Fort Rucker, AL 36362-5000; or call DSN 558-5706/2359 or commercial 205-5706/2359.

Area Maintenance and Supply Facility Reimbursable Operations

by Mr. Neal Johnson

The Area Maintenance Facility (AMF) (now Area Maintenance and Supply Facility [AMSF]), operates on a stringent budget. So, the AMSF now must provide its services on a reimbursable basis, which keeps us in stride with the Army's "doing more with less" philosophy. The major Army commands (MACOMs) were informed of the new reimbursable policy, and that the responsibility for paying for AMSF services lies with the requesting installation.

On 1 September 1975, U.S. Army Communications Command (USACC), Fort Huachuca, AZ, realized the need for a support maintenance facility to provide service to the Army airfields under their jurisdiction. To do this, the AMF was founded at Fort Rucker, AL.

This organization had a dual mission. Their first mission was to operate a Direct Exchange Branch that repaired and distributed modules, printed circuit boards, and subassemblies used in all air traffic control/navigational aids (ATC/NAVAIDS) systems. Their second mission was to operate a Mobile Maintenance Contact Team (MMCT) that provided maintenance assistance both telephonically and on site.

The AMF did not have a supply function. This function was absorbed into the Supply Support Activity (SSA), 7th Signal Command, Fort Ritchie, MD. The service area consisted of continental United States, Alaska, Hawaii, Panama and, to be added later, select sites in Korea. Since the airfields were operated by USACC, the AMF was centrally funded, and its services were free.

In 1986, the ATC transfer plan removed all airfields and ATC operations from under the USACC umbrella and assigned them to their respective MACOMs. According to the ATC transfer plan, the AMF remained in place and became an operational division of the U.S. Army Air Traffic Control Activity during its 1986 transfer to Fort Rucker. The SSA at Fort Ritchie agreed to continue supporting ATC until in-house supply support could be developed.

In August 1988, Department of Army redesignated AMF as an AMSF, to operate as a Special Repair Activity and develop an authorized stockage list (ASL) of ATC-peculiar repair parts. It also decreed that all AMSF actions would be on a reimbursable basis.

We have averaged the cost of AMSF services to each MACOM for fiscal year (FY)9O and FY91, and arrived at a figure for future requests for an MMCT and a repairable exchange (RX). The MMCT services are charged at 100 percent (travel, per diem, and in or around transportation). The RX transactions (unserviceable turn-ins and serviceable issues) are assessed a 35-percent surcharge to cover repair costs and transportation. This surcharge will be 35 percent of the unit price on the current Army Master Data File (AMDF). If the unserviceable turn-ins cannot be repaired, the MACOM account will be adjusted accordingly.

The AMSF maintains an ASL of ATC-peculiar repair parts for most of the NAVAIDS currently in use at Army airfields. The main purpose of this ASL is to maintain the integrity of replacement parts for some of our antiquated or low-density NAVAIDS systems. These parts will be supplied on an as-needed basis (routine shipment or overnight when required) and will be charged at AMDF prices.

These figures are startup estimates that may have to be adjusted in the future. Although the AMSF is no longer centrally funded, it will continue its high grade service to the ATC community in agreement with the MACOM budget.

Mr. Johnson is Chief, Area Maintenance and Supply Facility, U.S. Army Air Traffic Control Activity, Fort Rucker, AL

U.S. Army Air Traffic Control Activity

Readers are encouraged to address matters concerning air traffic control to: Commander, USAAVNC, ATTN: ATZQ-ATC-MO, Fort Rucker, AL 36362-5265

PEARL'S

Who Is Responsible?

by Chief Warrant (CW3) Daniel R. Vandervort

Every unit gets their share of new personnel, and they all ask the same questions. Who is responsible for supply? Who is responsible for TA-50? Who is responsible for aviation life support equipment (ALSE)? Do these questions sound familiar? Well, I cannot answer the first two questions, but maybe I can answer the last one.

Who is responsible for ALSE? Army Regulation 95-3 states that the commander will establish an aviation life support system. The commander determines the need for ALSE, and he sets up a program. I guess that makes him somewhat responsible?

The commander then appoints an ALSE officer and an ALSE noncommissioned officer or technician. They set up the budget, order the equipment, set up the inspection program, and inspect your equipment. I guess that makes them somewhat responsible too.

The pilot in command of the aircraft ensures the ALSE is adequate to support the mission. But, what is adequate? Does he merely ensure that everyone wears their vest? Does he check each crewmember's equipment for completeness and serviceability? I guess that makes him responsible too, doesn't it?

That brings us down to you. After all, you are the one who wears the equipment. You sign for this equipment, but do you know its purpose? That is the real question. The heavy equipment you sign for and wear is not intended to make your life hot and miserable. It gives you the best chance of survival in a situation where you need all the help you can get.

Can you answer the question now? Who is responsible for ALSE? **You** are responsible for ALSE. After all, you wear the equipment, and you must rely on it. So, be responsible. Instead of merely grabbing your equipment from your locker and going out to fly, take a couple of minutes to check it. Does your radio work? Are your life preservers adequate? Is your helmet cracked? Think, will this equipment save your life? What is a couple of minutes versus your life?

So now, **who** is responsible for ALSE?

CW3 Vandervort is the Battalion ALSE Officer, 1/244 Aviation Battalion, Louisiana Army National Guard, New Orleans, LA

Personal Equipment and Rescue/ survival Lowdown

If you have questions about ALSE or rescue/survival gear, write to Product Manager, ALSE, ATTN: SFAE-AV-LSE, 4300 Goodfellow Boulevard, St. Louis, MO 63120-1798, or call DSN 693-3573 or commercial 314-263-3573.

U.S. Army Class A Aviation Flight Mishaps

Fiscal Year	Number	Flying Hours	Rate	Army Fatalities	Total Cost (in millions)
FY 91 (through 31 August)	46	1,172,008	3.92	37	$175.4
FY 92 (through 31 August)	20	1,231,779 (estimated)	1.62	10	$72.9

* U.S. G.P.O.:1992-733-010:60004

What's In The Future For ANCOC CMF 67

by Sergeant First Class (SFC) Lawrence F. Dunn

It is 1992; we are drawing down our forces, losing qualified soldiers, and demanding the most of our future soldiers. What is next?

Retention has always been a concern in the current Army. Moreover, this trend may continue with the future Army. To keep soldiers in the Army of the future, we must give them a key to the future. These keys must open doors to their careers and lifetime goals. To attract a 20-year soldier, we must develop some preset goals that will provide a key to his future, during and after his service in the Army.

Let us explore the possibility of certifying our soldiers when they attend the Advanced Noncommissioned Officer Course (ANCOC). Selected soldiers in Career Management Field (CMF) 67 qualify for Federal Aviation Administration (FAA) certification. This certification is a license called the Airframe and Powerplant License. Currently, only military occupational specialties (MOSs) 67 and 68B qualify for this license.

The strategy under study allows the ANCOC selectee to determine if he wants to attain a mechanic's rating. If so, he will send a Department of Army Form 4187, or a newly designed form, to the U.S. Army Aviation Logistics School, Fort Eustis, VA, requesting permission to attend the preparation workshop. When approved, this program will be announced to the Army Aviation maintenance community.

At present, the strategy will require the selected NCO to report to Fort Eustis 3 weeks before the start date of ANCOC. During this 3-week period, the NCO will attend a workshop that will prepare him for the three written examinations. The number of examinations depends on his desired ratings. An onsite written examiner will be available to test him.

Upon completion of the workshop, the NCO will attend ANCOC. During this time the ANCOC student will receive grade slips. At the completion of ANCOC, the NCO will be given an oral and practical examination.

The oral and practical examinations are hands-on examinations that require the NCO to perform specified tasks according to FAA standard. Although this examination is indepth, our maintenance personnel should have no problem passing it. The personnel passing the written, oral, and practical examinations will be presented a temporary Airframe and/or Powerplant Certificate. A permanent license will be mailed to them after the final test results are processed by the FAA.

If you have any questions about your qualifications, review Federal Aviation Regulation, Part 65, Subpart D. Supplements are contained in the Code of Federal Regulations, Title 14, Aeronautics and Space, which will provide detailed information.

SFC Dunn is the Training Development Noncommissioned Officer, Enlisted Training Branch, Directorate of Training and Doctrine, U.S. Army Aviation Logistics School, Fort Eustis, VA.

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Key Points On The Total Force

In a memorandum dated March 1991, General Gordon R. Sullivan, then Army Vice Chief of Staff, described his initial observations of Operation Desert Storm (ODS). Excerpts from his memorandum on the total force follow:

- Trained and ready armed forces (all services) are essential. In the future with a smaller force, the kind of quality, capability, and readiness we all displayed during ODS will be even more important.
- Great soldiers—American's sons and daughters, Active and Reserve—make great weapons work; they are the key to success; i.e., technology alone is not enough.
- Integrated land, air, and sea operations, not single service approaches, are key to success. Only in rare circumstances will a single service along have capabilities sufficient to deter or resolve a crisis or conflict.
- Power projection of the historic proportions of ODS may again be required. We cannot consider this operation unique; we must have the capability to conduct another one similar to it—in speed and size of forces—at some point in the future.
- Active capabilities at 750,000 end strength were adequate for ODS; at 535,000 we will be at the irreducible minimum.
- Active forces are adequately versatile and lethal, and marginally deployable. We need better ability to tailor ourselves for deployment; need more and better sealift and airlift—need the C-17 and more fast ships.
- Active force structure is deficient for major contingencies (e.g., insufficient fully structured armored forces, combat support, and combat service support in the continental United States contingency forces).
- Highly capable and available Reserve Forces are essential. We can't expect them to be ready on C-Day; must plan appropriately; and must give the Reserve Component every opportunity to be all they can reasonably be.
- Reserve capabilities are adequate but improperly postured for no-notice contingencies (need to revise 200,000, CAPSTONE, to focus on power projection, not the former NATO-Warsaw Pact scenario).
- Reserve capabilities are adequately lethal, but only marginally versatile and deployable (calls for continued Active Component—Reserve Component close integration to enhance training, readiness, and ability to adapt quickly to unforeseen crisis).
- We must avoid degradations in our capabilities and readiness as we enter the transition from ODS to peace and resume the builddown to shape the smaller Army for the future.